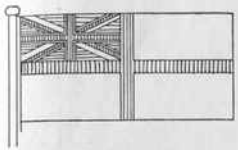
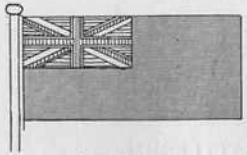
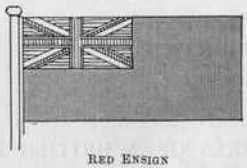
BRITISH ROYAL NAVY.



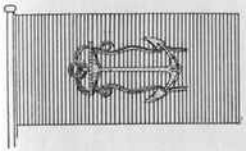
WHITE ENSIGN



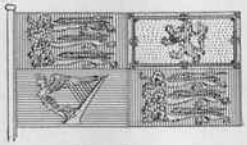
BLUE ENSIGN



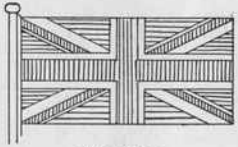
RED ENSIGN



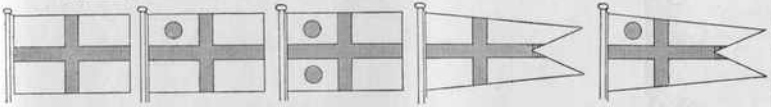
ADMIRALTY FLAG



ROYAL STANDARD



UNION FLAG



ADMIRAL — VICE-ADMIRAL — REAR-ADMIRAL — COMMODORE, SENIOR OFFICER (at yard arm) — COMMODORE, 2ND CLASS

Colour of Ships.

Warships in Home waters, dark grey; in Mediterranean, China, East Indies, America and West Indies, light grey, except submarines, very dark grey in Home waters, dark blue in Mediterranean and dark olive-green on China Station. Escort Vessels in East Indies and Red Sea, white with light grey upperworks (and in some cases, yellow funnels). Escort Vessels on America and West Indies, New Zealand and Africa Stations, grey all over. Surveying Vessels have white hulls with yellow funnels. All Destroyers (but no Leaders) have their Pendant Numbers on bows and across sterns. Submarines have their Class Letter and Numbers painted on sides of Conning Tower.

Recent Construction.

Programme.

1937. 3 Battleships, 2 Aircraft Carriers, 7 Cruisers, 16 Destroyers, 7 Submarines, 2 Depot Ships, 3 Escort Vessels, 4 Minesweepers, 3 Patrol Vessels, 1 Surveying Vessel, 2 Gunboats, 10 Torpedo Boats, 6 Boom Working Vessels, 10 Boom Defence Vessels, 2 Minelayers, 1 Fleet Tug.

1938. 2 Battleships, 1 Aircraft Carrier, 7 Cruisers, 3 Submarines, 2 Depot Ships, 1 Fleet Air Arm Repair Ship, 3 Minelayers, 2 Gunboats, 7 Torpedo Boats, 5 Boom Working Vessels, 1 Fleet Tug.

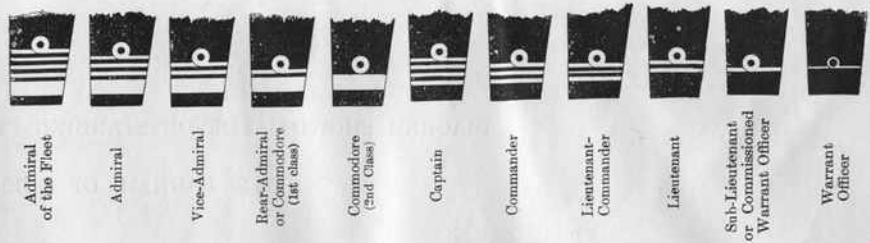
1939. 2 Battleships, 1 Aircraft Carrier, 4 Cruisers, 16 Destroyers, 4 Submarines, 22 Escort Vessels, 20 Minesweepers, 1 Minelayer, 1 Depot Ship, 1 Gunboat, 6 Torpedo Boats, 8 Boom Defence Vessels, 1 Royal Yacht, 1 Hospital Ship, 107 Trawlers, 56 Patrol Vessels, 1 Cable Vessel, 1 Fleet Tug.

(Supplementary War Programmes have since been put in hand, but details are not available.)

Navy Estimates and Personnel.

(1937) £105,065,000.	(1938) £131,512,519.	(1939) £149,399,000.	(Excluding Supplementary Votes.)
Personnel: 112,000.	Personnel: 121,000.	Personnel: 133,000.	

Uniforms.



Admiral of the Fleet — Admiral — Vice-Admiral — Rear-Admiral or Commodore (1st class) — Commodore (2nd Class) — Captain — Commander — Lieutenant-Commander — Lieutenant — Sub-Lieutenant or Commissioned Warrant Officer — Warrant Officer

Relative Ranks. Non-Executive Branches.

Engineer Officers have same as above, with purple between stripes.

Medical	,,	,,	,,	,,	scarlet	,,	,,
Dental	,,	,,	,,	,,	orange	,,	,,
Accountant	,,	,,	,,	,,	white	,,	,,
Instructor	,,	,,	,,	,,	light blue	,,	,,
Shipwright	,,	,,	,,	,,	silver grey	,,	,,
Wardmaster	,,	,,	,,	,,	maroon	,,	,,
Electrical	,,	,,	,,	,,	dark green	,,	,,
Ordnance	,,	,,	,,	,,	dark blue	,,	,,

Board of Admiralty.

First Lord: The Right Hon. A. V. Alexander, M.P.
First Sea Lord and Chief of Naval Staff: Admiral of the Fleet Sir Dudley Pound, G.C.B., G.C.V.O.
Second Sea Lord and Chief of Naval Personnel: Admiral Sir Charles Little, K.C.B
Third Sea Lord and Controller: Vice-Admiral B. A. Fraser, C.B.
Fourth Sea Lord and Chief of Supplies and Transport: Vice-Admiral G. S. Arbuthnot, C.B., D.S.O.
Fifth Sea Lord and Chief of Naval Air Services: Vice-Admiral Sir Guy Royle, K.C.B., C.M.G.
Vice Chief of the Naval Staff: Vice-Admiral Tom Phillips, C.B.
Assistant Chiefs of the Naval Staff: Vice-Admiral H. R. Moore, C.B., C.V.O., D.S.O.
Rear-Admiral Sir Henry Harwood, K.C.B., O.B.E.
Rear-Admiral A. J. Power, C.V.O.
Civil Lord: Captain A. U. M. Hudson, M.P.
Parliamentary and Financial Secretary: Sir Victor Warrender, Bt., M.P.
Permanent Secretary: Mr. H. V. Markham, M.C.

Committee of Imperial Defence.

Chairman: The Prime Minister.
Members: H. M. Secretaries of State for War, Air, Foreign Affairs, Dominions, Colonies, India; The First Lord of the Admiralty; The First Sea Lord and Chief of Naval Staff; Chief of the Imperial General Staff; Chief of the Air Staff. Also representatives of H.M. Treasury and other Government Departments.

Director of Naval Construction.

Sir Stanley V. Goodall, K.C.B., O.B.E.

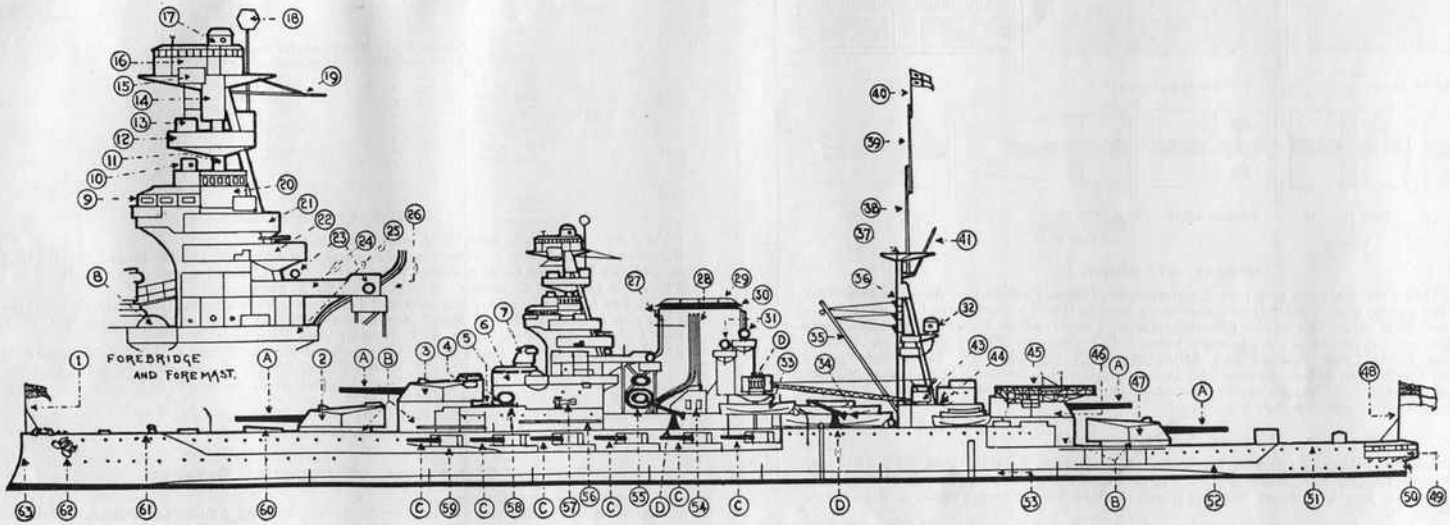
Mercantile Marine.

(From "Lloyd's Register," 1939.)

Total for whole of British Empire, 9,488 vessels of 21,215,261 gross tonnage.

DIAGRAM SHOWING THE OUTSTANDING FEATURES OF A BRITISH BATTLESHIP.

(H.M.S. BARHAM, OF QUEEN ELIZABETH TYPE.)



(FOR KEY TO VARIOUS NUMBERED POINTS, SEE OPPOSITE.)

KEY TO DIAGRAM OPPOSITE.

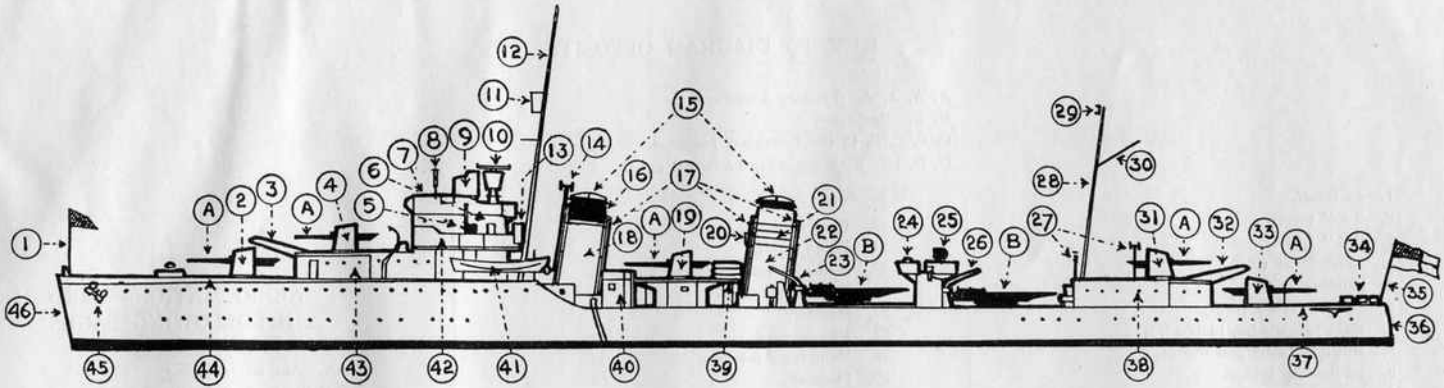
A, A, A, A. Primary armament.
B, B. Barbettes.
C, C, C, C, C, C. Secondary armament of 6-inch guns.
D, D, D. High angle (anti-aircraft) guns.

1. Jackstaff.
2. "A" turret.
3. "B" turret.
4. Rangefinder (R.F.).
5. Saluting guns.
6. Conning tower (C.T.).
7. Main rangefinder, in hood.
8. Multiple Lewis gun mount.
9. Navigating bridge.
10. Control.
11. Tripod foremast.
12. Lower control top.
13. Director tower.
14. Access to platform.
15. Platform.
16. Upper control top.
17. Tower.
18. Frame aerial for directional wireless.
19. Yard.
20. Charthouse.
21. Compass platform.
22. Bridge (in a flagship, Admiral's bridge).
23. Signalling searchlights (S.L.).
24. Flag deck or signal bridge.
25. Platform.
26. Trunk of funnel.
27. Syren brackets.
28. Steam pipes (actually, safety valve uptakes).
29. Caging.
30. Funnel cap.
31. Main searchlights.
32. Tower.
33. Boat in davits.
34. Boom boats.
35. Main derrick (for boats, etc.).
36. Tripod mainmast.
37. Maintop.
38. Maintopmast.
39. Maintopgallantmast.
40. Flagstaff.
41. Gaff.
43. Crane for aircraft.
44. After shelter deck.
45. Catapult.
46. "X" turret.
47. "Y" turret.
48. Ensign staff.
49. Sternwalk.
50. Stern.
51. Quarterdeck (Q.D.).
52. Main deck.
53. Bulges.
54. Workshop, etc.
55. Floats.
56. Boat boom.
57. Paravane.
58. Forward shelter deck.
59. Breakwater.
60. do.
61. Forecastle (F.X.)
62. Anchor in hawse pipe.
63. Bow.

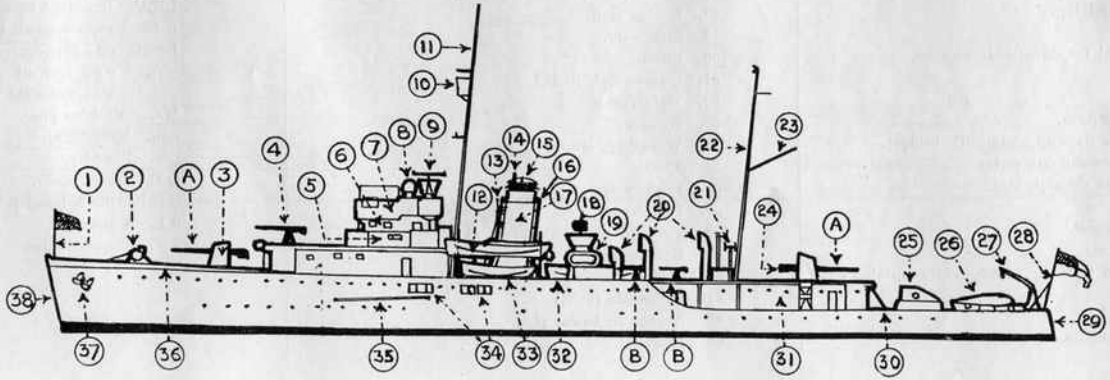
ABBREVIATIONS USED IN FOLLOWING PAGES

AA. Anti-aircraft guns.
B.H.P. Brake horse power.
Boilers: D.E., double-ended.
„ S.E., single-ended.
C.T. Conning tower.
D.C. Depth charge.
Dir. Con. Director controlled.
I.H.P. Indicated horse power.
K.C. Krupp cemented steel.
Length pp., between perpendiculars.
„ o.a., over all.
„ w.l., waterline.
M.G. Machine guns.
mm. Millimetres.
pdr. Pounder.
Q.D. Quarterdeck.
S.H.P. Shaft horse power.
S.L. Searchlight.
T.T. Torpedo tubes.

OUTSTANDING FEATURES OF A BRITISH FLOTILLA LEADER (H.M.S. FAULKNOR).



OUTSTANDING FEATURES OF A BRITISH SLOOP (H.M.S. LEITH).



(FOR KEY TO VARIOUS NUMBERED PARTS, SEE OPPOSITE).

KEY TO DIAGRAM OF FLOTILLA LEADER (H.M.S. FAULKNOR).

A. A. A. A. A. 4·7 inch guns (in shields) B. B. Torpedo tubes (quadruple mounts)

1. Jackstaff.
2. No. 1 gun.
3. Blast screen.
4. No. 2 gun (superfiring).
5. Multi-machine gun.
6. Charthouse.
7. Navigating bridge.
8. Semaphore.
9. Control tower.
10. Rangefinder (R.F.).
11. Crow's nest (C.N.).
12. Foremast.
13. Flag rack.
14. Galley pipe.
15. Caps and caging.
16. Black top (indicating Flotilla Leader).
17. Steam pipes (safety valve uptakes).
18. Forefunnel.
19. No. 3 gun (on platform).
20. Syren brackets.
21. Funnel bands (indicating Flotilla).
22. After funnel.
23. Torpedo davit (port).
24. Compass on platform.
25. Searchlight (S.L.) on platform.
26. Torpedo davit (starboard).
27. Galley pipes.
28. Mainmast.
29. Navigation light.
30. Gaff.
31. No. 4 gun (superfiring).
32. Blast screen.
33. No. 5 gun.
34. Depth charges (D.C.).
35. Ensign staff.
36. Stern.
37. Quarterdeck (Q.D.).
38. After superstructure.
39. Floats.
40. Engineers' store.
41. Boats (in davits, port and starboard).
42. Signal bridge.
43. Forward superstructure.
44. Forecastle.
45. Anchor (in hawse pipe).
46. Bow (stem).

KEY TO DIAGRAM OF SLOOP (H.M.S. LEITH).

A. A. 4·7 inch guns (in shields). B. B. 3 pounder (saluting guns).

1. Jackstaff.
2. Windlass.
3. No. 1 gun.
4. 3 inch anti-aircraft (A.A.) gun (superfiring).
5. Signal deck.
6. Wheelhouse.
7. Navigating bridge.
8. Control.
9. Rangefinder (R.F.).
10. Crow's nest (C.N.).
11. Foremast.
12. Boats (in davits, port and starboard).
13. Syren brackets.
14. Galley pipe.
15. Cap and caging.
16. Steampipes (safety valve uptakes).
17. Funnel.
18. Searchlight (S.L.) on platform.
19. Float.
20. Ventilators (cowls).
21. Galley pipes.
22. Mainmast.
23. Gaff.
24. No. 2 gun.
25. Minesweeping winch.
26. High speed mine sweeps.
27. Davits (for sweeping gear).
28. Ensign staff.
29. Stern.
30. Quarterdeck (Q.D.).
31. After shelter deck.
32. Motor launch (in davits to starboard).
33. Boat.
34. Ventilation ports.
35. Boat boom.
36. Forecastle.
37. Anchor in hawse pipe.
38. Bow (stem).

BRITISH NAVAL ORDNANCE.

NOTE.—All details unofficial, but believed to be approximately correct. (Particulars formerly given of some older marks of guns, no longer mounted in H.M. Ships, have been deleted.)

Calibre. ins.	Mark	Length of Bore in Calibres.	Weight of piece without B.M.	Weight of Projectile.	M.V.	M.E.	Weight of Full Charge.	REMARKS.
			tons cwts. qrs.	lbs.	f. s.	f. t.	lbs.	
HEAVY B.L.								
16	I	45	103 10 0	2461	2953	..	640	"Nelson" and "Rodney."
15	I	42	97 3 0	1920	2450	84,070	428	Mounted in "Royal Sovereign," "Queen Elizabeth," "Hood," "Repulse," and "Erebus" classes.
14				1560				Mounted in "King George V" class.
13.5	VI	45	75 8 0	1250 L. / 1400 H.	2700	63,190	293 L. / 297 H.	
	V	45	74 18 1	..	2500	63,190	..	"Iron Duke."
MEDIUM B.L.								
8	I	50	16 10 0	256	3150	17,615	..	"Kent," "London," "Dorsetshire" and "York" classes.
6	XVIII	50	8 9 2	100	2800	..	$28\frac{5}{8}$	
	XVI	50	7 19 1	100	3100	6665	33	
	XII	45	6 14 2	100	2750	..	$27\frac{1}{8}$	Cruisers and Secondary Armament Battleships and Battle Cruisers.
	XI*	50	8 8 2	100	2937	5990	$32\frac{1}{12}$	
	XI	50	8 8 2	100	2937	5990	$32\frac{1}{12}$	
	VII	44.9	7 7 2	100	2493	5250	$28\frac{5}{8}$	Secondary Armament "Iron Duke."
5.5	I	50	6 1 0	82 / 85	2725	4222	$22\frac{1}{4}$	Breech mechanism of the Holmstrom type. "Hermes" and Secondary Armament "Hood."
4.7	XII							Flotilla Leaders and Destroyers.
	II	40	3 1 0	48.5	2560	2205	..	AA. mounted in "Nelson," "Rodney." Semi-Automatic.
	I	45	3 1 0	50	3000	2800	$11\frac{3}{8}$	Mounted in Flotilla Leaders and Destroyers.
LIGHT B.L.								
4.5								Dual purpose. "Renown," "Ark Royal," "Furious," and Depot Ships
4	XI	40	1 4 3	31	2100	..	..	
	IX*	44.35	2 1 1	31	2625	1934	$7\frac{11}{16}$	Secondary Armament, Battle Cruisers and Monitors.
	IX	44.35	2 1 1	31	2625	1934	$7\frac{11}{16}$	
	VIII	39.8	1 4 2	31	2287	..	$5\frac{3}{4}$	Earlier Destroyers.
MEDIUM Q.F.								
6	III	40	7 0 0	100	2025	..	$13\frac{1}{2}$	
4.7	VII	50	3 5 0	45	..	..	$8\frac{11}{16}$	
	V*	43.9	2 10 0	45	..	..	$8\frac{11}{16}$	
	V	43.9	2 10 0	45	..	..	$8\frac{11}{16}$	

BRITISH NAVAL ORDNANCE.

LIGHT GUNS.—(See Note on previous page.)

Calibre. ins.	Mark.	Length of Bore in Calibres.	Weight of piece without B.M.	Weight of Projectile.	M.V.	M.E.	Weight of Full Charge.	REMARKS.
			tons cwts. qrs.	lbs.	f. s.	f. t.	lbs.	
LIGHT Q.F.								
4	XVI XII VII V* V IV III	 40 40.5 45 45 40 40	 1 6 0 1 4 4 2 1 2 2 1 2 1 3 3 1 3 0	 31 31 31 31 31 25	 2100 2750 2625 2625 2225 2456	 .. 1970 1934 1934 1137 1200	 $5\frac{1}{2}$ $5\frac{1}{2}$ $5\frac{1}{2}$ $7\frac{1}{16}$ $5\frac{1}{2}$ $3\frac{2}{16}$	Semi-automatic. Fixed ammunition. AA. mounting. Capital Ships, Cruisers and Aircraft Carriers. Do. do. do. do. Do. do. do. do. Semi-automatic. Do. } Earlier Destroyers and Submarines. D.A.M.S.
3	I	45	1 0 0	16 / $12\frac{1}{2}$	2500	..	$2\frac{1}{2}$ / $2\frac{1}{2}$	Semi-Automatic. Fixed ammunition. AA. mounting. Earlier Cruisers, Flotilla Leaders and Destroyers.
3	I	23	5 3	$12\frac{1}{2}$	1700	..	$1\frac{5}{16}$	Fixed ammunition.
3	I	40	11 2	$12\frac{1}{2}$	2197	..	2	Minesweepers, Sloops and Gunboats.
2.24	II	40	7 0	6	1735	..	ozs. $8\frac{1}{2}$	Fixed ammunition. Auxiliary patrol.
1.85	II I	40 50	5 0 6 0	$3\frac{5}{16}$ $3\frac{5}{16}$	1873 2575	.. 152	$7\frac{1}{2}$ $13\frac{1}{2}$	Fixed ammunition. Hotchkiss. Saluting guns in all classes. Fixed ammunition. Vickers. Auxiliary Patrol. Aircraft Carriers.
	II I	39.37 39.37	1 3 1 3	2 2	2000 2000	55.5 55.5	3 3	} Automatic. AA. mounting. Cruisers, Flotilla Leaders and Destroyers.
ANTI-SUBMARINE HOWITZERS, B.L.								
11 7.5	I I	8.5 8.5	1 14 2 6 0	200 100	.. 390	.. 105.5	lbs. .. $1\frac{1}{4}$	

STICK BOMBS.

Gun.	Weight of Bomb.	Charge.		
4.7 in. Q.F.	600 / 500 / 250 / 200	3 lbs. 14 ozs.		
4 in. B.L. or Q.F.	350 200	2 lbs. 2 ozs. 3 lbs. 4 ozs.	Mark IV. & VIII. Mark V & IX.	
12 pdr. 12 cwt. Q.F.	200	1 lb.		

Torpedoes.

No official details are available of the latest marks of torpedoes. Standard torpedo used is still the 21 inch heater type, though the *Nelson* and *Rodney* carry 24·5 inch torpedoes, which are discharged to port and starboard from submerged tubes forward. Increased size of latter type gives greater range and heavier explosive charge, but the extra weight and dimensions add to the difficulties of picking up and handling. On the other hand, the change of mounting to a position well forward of beam obviates the necessity for a bar to protect the torpedo while leaving the tube. All other tubes in ships of recent date are of the above-water pattern, each mounting carrying five tubes in the latest destroyers. Few modifications of the internal mechanism of torpedoes have been divulged, but running results are reported to show greatly increased efficiency and reliability.

18 inch torpedoes are used by the torpedo bombers of the Fleet Air Arm and some of the earlier motor torpedo boats.

Searchlights.

These are of 36 inch and 24 inch diameters. Most capital ships and cruisers now carry only four of the former size, with two 20 inch for signalling. Ship's supply voltage is reduced by resistances to that required by the arc. The arcs are mounted before parabolic mirrors. Carbons feed in automatically and are rotated constantly. The crater is kept at the correct focal distance from the mirror by a "third electrode", thus ensuring a parallel beam. A carbon with a wiper action is used for striking the arc. Under normal conditions, no attention is required while burning until new carbons are needed. The barrels in which the lamp is mounted are fitted with iris shutters, and the light is controlled from the forebridge.

Mining.

Mark H.2 mine, as used in the later stages of the War, is still the standard pattern of contact mine laid by surface vessels, with modification for use by submarines. Weight is 650 lbs., positive buoyancy 400 lbs., diameter 38 inches. Six horns are fitted for detonating the charge. A spring-loaded switch renders the mine safe should the mooring wire break. This is in accordance with international law. Various patterns of sinkers are used with this mine, which allow mines to be moored at a set height above the sea bottom or depth below the surface.

Protective paravanes, of a design similar to that used during the War, are carried by all deep-draught ships, a modified pattern being used by destroyers as a high speed mine sweep.

Catapults.

Types experimented with and adopted have been the Carey; Forbes; R.A.E. (Royal Aircraft Establishment); and the Ransome & Rapier "Slider". Performance aimed at in the earlier patterns was the launching into flight of aircraft up to a maximum weight of 7,000 lbs. at a speed of 45 m.p.h. with a travel of 34 ft. In later types, these figures have been improved to 8,000, lbs. 55–57 m.p.h. and over 50 ft. Power used is compressed air and/or cordite, transmitted either by a system of cables and pulleys or a series of multiple rams. The catapults are of (a) fixed or variable position and (b) fixed or variable lengths.

British Warship Builders.

In addition to the firms detailed below, the following shipyards have recently undertaken Admiralty orders for warships and/or Royal Fleet Auxiliaries: Ailsa Shipbuilding Co., Ltd., Troon; Caledon Shipbuilding & Engineering Co., Ltd., Dundee; Wm. Gray & Co., Ltd., West Hartlepool; Furness Shipbuilding Co., Ltd., Haverton Hill on Tees; Henry Robb, Ltd., Leith; Philip & Son, Ltd., Dartmouth; Ardrossan Dockyard Co., Ltd., Ardossan; Lytham Shipbuilding Co., Ltd., Lytham; Blyth Shipbuilding and Dry Dock Co., Ltd.; Goole Shipbuilding & Repair Co., Ltd.; Wm. Simons & Co., Ltd., Renfrew; Lobnitz & Co., Ltd., Renfrew; Hall, Russell & Co., Ltd., Aberdeen; Charles Hill & Co., Bristol; John Lewis & Co., Aberdeen; Fleming & Ferguson, Ltd., Paisley; Smith's Dock Co., Ltd., South Bank-on-Tees; Vosper, Ltd., Portsmouth; British Power Boat Co., Ltd., Hythe, Southampton; Barclay, Curle & Co., Ltd., Whiteinch, Glasgow; Wm. Hamilton & Co., Ltd., Port Glasgow; Ferguson Bros. Ltd., Port Glasgow; A. & J. Inglis, Ltd., Glasgow; Grangemouth Dockyard Co., Ltd.; Cochrane & Sons, Ltd., Selby; Cook, Welton & Gemmell, Beverley; Geo. Brown & Co., Greenock.

Note.—The headings give the abbreviated titles by which builders are mentioned on later Ship Pages. With a few exceptions, all details given below were kindly approved or furnished by the firms mentioned.

Cammell Laird.

CAMMELL, LAIRD & CO., LTD. (BIRKENHEAD AND TRANMERE). Area of yard, 108 acres. Six slips (longest 1000 ft.), six small slips. Seven graving docks, five small and No. 6, 708 × 80 ft.; No. 7, 861 × 90 ft. Outer basin, 14½ acres; inner basin, 2¾ acres. Annual capacity, 100,000 tons *gross* and 400,000 H.P. output. Establishment consists of North Yard, where vessels up to 500 feet in length can be constructed, and the South Yard, in which are slips suitable for vessels between 600 and 900 feet in length. Builders of heavy armoured ships, cruisers, flotilla leaders, destroyers, submarines, &c., as well as of merchant vessels of all classes. Equipment of yard thoroughly up-to-date.

Clydebank.

JOHN BROWN & CO., LTD. (SHIPBUILDING & ENGINEERING WORKS, CLYDEBANK, GLASGOW). Area, 80 acres. River frontage, 1050 yards. Building berths: Five of 1,000 to 600 ft. in length, and three 600 to 450 ft. in length. Building berths are commanded by derricks, tower and gantry cranes; two of berths are covered. Tidal basin: 5¼ acres in area, 35 ft. depth, L.W.O.S.T., with two entrances of 190 and 220 ft. width respectively. Basin commanded by two 150-ton cranes; also four wharf cranes of 5 to 30 tons capacity. Builders of war and mercantile vessels of all types and the largest dimensions, inclusive of machinery and equipment. Steam engines of reciprocating type, Parsons and Brown-Curtis turbine types; and Diesel oil engines.

Denny.

WM. DENNY & BROS., LTD. (LEVEN SHIPYARD, DUMBARTON). Area: 60 acres. Building berths up to 550 ft. in length. Two wet basins, one 475 ft., one 910 ft. Numerous cranes with lifts up to 110 tons. Destroyers, torpedo boats, escort vessels, surveying vessels, submarines and mercantile vessels built, with necessary machinery, &c.

Fairfield.

THE FAIRFIELD SHIPBUILDING & ENGINEERING CO., LTD. (GOVAN, GLASGOW). Area: 80 acres. Water front: 3,000 ft. 6 slips to build ships up to 1,000 ft. in length. Dock: 5½ acres with 270 ft. entrance. 250-ton crane. Wet basin: 900 ft. long. Naval and mercantile ships, engines, boilers, &c., of all types.

Harland & Wolff.

HARLAND & WOLFF, LIMITED. Shipbuilding, shiprepairing and engineering works at Belfast: 19 slips fully equipped to build the largest types of naval and mercantile vessels: 5 graving Docks in close proximity to the works. Shipyard and shiprepairing works at Govan, Glasgow: 7 large slips and graving dock adjoining. Up-to-date engineering works at Finnieston, Glasgow. Engineering and ordnance works at Scotstoun, Glasgow. Large iron foundry at Govan, Glasgow: castings up to 100 tons. Modern and fully equipped ship and machinery repair works at London, Liverpool and Southampton. Shipyard for small craft and general engineering works at North Woolwich, London.

Hawthorn Leslie.

R. & W. HAWTHORN, LESLIE & CO., LTD. (HEBBURN YARD, HEBBURN-ON-TYNE). Nine slips up to 735 ft. long. One dock: 502⅔ × 66 (entrance) × 23½ ft. on blocks; 26 ft. draught at quay at low water. Engine department of 200,000 I.H.P. per annum. Designers and builders of cruisers, destroyers and other warship types. Engine every type of war vessel.

Scotts'.

SCOTTS' SHIPBUILDING & ENGINEERING CO., LTD. (GREENOCK). Slips for eight large vessels; fitting-out basin; graving dock. Makers of heavy oil engines.

Stephen.

ALEX. STEPHEN & SONS, LTD. (LINTHOUSE, GOVAN, GLASGOW). Build cruisers, destroyers and torpedo craft; also mail, passenger and cargo steamers. Machinery: all types, 200,000 H.P. output per annum. Boilers: Scotch, cylindrical and all water-tube types. Six building berths for construction of ships up to 700 ft. long. Water front: 1,500 ft. Area of yard: 52 acres. Repairs of all classes to hulls and machinery.

Swan Hunter.

SWAN, HUNTER & WIGHAM RICHARDSON, LTD. (WALLSEND-ON-TYNE). Sixteen building berths up to 900 ft. in length, served by overhead electric cranes. Four of the largest berths covered in. Annual gross shipbuilding capacity, 150,000 tons. Engine works: 75,000 H.P. output per year.

The dry dock department includes a large repairing yard with three graving docks. Engine works build marine oil engines, marine steam turbines, Bauer-Wach exhaust turbines, and reciprocating steam engines. Total area of works: 80 acres. Water frontage: 4,000 ft.

Allied firms are the Wallsend Slipway & Engineering Co., Ltd., Wallsend; Barclay, Curle & Co., Ltd., of Whiteinch, Glasgow, Govan and Elderslie.

Thornycroft.

JOHN I. THORNYCROFT & CO., LTD. (WOOLSTON, SOUTHAMPTON). Builders of river gunboats, destroyers, light cruisers, merchant vessels up to 400 ft. Thirteen building berths, including three covered in. One hauling-up slip for ships up to 170 ft. long. Water frontage: 2,000 ft. opposite Southampton Docks. Specialities: Turbines, water-tube boilers, oil fuel gear. Workshops in Southampton Docks, adjacent to fitting-out dock for hull and machinery repairs. Total floor area: 25,000 sq. ft. Motor torpedo boats built at Hampton-on-Thames.

Vickers-Armstrongs.

(NAVAL CONSTRUCTION WORKS, BARROW-IN-FURNESS). Area of works: 144 acres. Thirteen building berths, of length respectively 800 ft.; 750 ft.; 680 ft.; two of 620 ft.; two of 580 ft.; two of 550 ft.; 530 ft.; 500 ft.; 410 ft.; 380 ft.—the last two being entirely under cover. Water frontage about 1,200 yards plus fitting-out quays about 1,100 yards. Building berths fitted with modern tower cranes and covered berths with gantry cranes. Fitting out berths equipped with one 250-ton and one 150-ton giant hammer-head cranes, 30-ton electric jib crane, 30-ton travelling hammer-head crane, 7½-ton cantilever crane, steam derrick and travelling cranes, etc. Floating dock, 420 × 59½ ft., to lift 5,200 tons. Graving dock, 500 × 60 × 22 ft. Extensive shops fully equipped with the most modern machinery for the construction of steam and internal combustion engines, boilers, electrical equipment, gun mountings, and every kind of naval and mercantile engineering work.

(NAVAL YARD, HIGH WALKER, NEWCASTLE-ON-TYNE). Area 83 acres. Opened 1913, equipped for the construction of both Warships and Mercantile Vessels. 10 Building Berths of lengths respectively 1,000 feet, 900 feet, 800 feet, two of 620 feet, five from 450 feet to 550 feet. Water frontage about 700 yards plus fitting-out quay about 800 yards. Building Berths fitted with modern Tower Cranes and fitting-out berth equipped with giant 250-ton Hammer Head Crane in addition to 30, 10, and 5-ton Travelling Cranes. Extensive Workshops fully equipped with the most modern machinery for Naval or Mercantile Ship construction, etc.

Also own the repairing establishment known as Palmers' Hebburn Co., Ltd., which includes the biggest graving dock on the N.E. coast. Agencies all over the world.

White.

J. SAMUEL WHITE & CO. LTD. (COWES). The oldest shipyard on the Admiralty list. Vessels up to 400 ft. in length, including light cruisers, flotilla leaders, destroyers, submarines, escort vessels, gunboats, patrol boats, high class passenger and cargo vessels, cross channel steamers, special service vessels, special craft for re-erection abroad, yachts, motor torpedo boats, pinnaces, and other small naval craft, high speed craft of all types. Seven building berths. Engine works for reciprocating engines and turbine engines of highest powers. Water-tube boilers (land and marine), "J. Samuel White" Diesel marine engines, "J. Samuel White" Diesel generating sets for marine service, "J. Samuel White" patent oil fuel installations for marine and land service, "Clinsol" clean-in-service strainers. Hammerhead 80-ton crane at fitting out quay.

Yarrow.

YARROW & CO., LTD. (SCOTSTOUN, GLASGOW). Area of yard: 16 acres. Water frontage: 750 ft. Six building berths, for ships up to 400 ft. long. Wet basin for fitting-out, 350 × 85 ft., served by 50-ton crane. Specialities are destroyers, fast yachts, vessels for shallow river navigation, both of stern-wheel type and of type propelled by screws working in tunnels, Yarrow water-tube boilers and Yarrow superheater, both for land and marine use. Also vessels propelled by internal-combustion motors. (Overseas Branch: Yarrows, Ltd., Victoria, B.C.)

COMPLETE LIST OF BRITISH WARSHIPS, as at September 3rd, 1939

Note.—Ships in italics were not complete when war began; those in parentheses have been lost.

Battleships and Battle Cruisers.

Lion
Temeraire
2 ships unnamed
King George V
Prince of Wales
Duke of York
Jellicoe
Beatty
Nelson
Rodney
Hood
Renown
Repulse
Queen Elizabeth
Valiant
Warspite
Malaya
Barham
Royal Sovereign
Resolution
Ramillies
Revenge
(Royal Oak)

Aircraft Carriers.

Implacable
Indefatigable
Illustrious
Victorious
Formidable
Indomitable
Ark Royal
Furious
Eagle
Hermes
(Courageous)
(Glorious)

Cruisers

Exeter
York
Dorsetshire
Norfolk
Devonshire
London
Shropshire
Sussex
Berwick
Cornwall
Cumberland
Kent
Suffolk
Fiji
Kenya
Mauritius
Nigeria
Trinidad
Ceylon
Gambia
Jamaica
Uganda
4 ships unnamed
Dido
Euryalus
Naiad
Phoebe
Sirius
Bonaventure
Hermione
Charybdis
Cleopatra

Cruisers—*contd.*

Scylla
Edinburgh
Belfast
Southampton
Newcastle
Sheffield
Birmingham
Glasgow
Gloucester
Liverpool
Manchester
Arethusa
Galatea
Penelope
Aurora
Leander
Orion
Neptune
Achilles
Ajax
Emerald
Enterprise
(Effingham)
Frobisher
Hawkins
Despatch
Diomede
Delhi
Dunedin
Durban
Danae
Dauntless
Dragon
Capetown
Colombo
Cardiff
Ceres
Caledon
Caradoc
(Calypso)

R.A.N.

Australia
Canberra
Hobart
Perth
Sydney
Adelaide

Anti-Aircraft Ships.

Cairo
Calcutta
Carlisle
Curacoa
Coventry
(Curlew)

Minelayers.

Latona
Abdiel
Manxman
Welshman
Adventure

Destroyers.

Laforey
Lance

Destroyers—*contd.*

Larne
Lively
Legion
Lightning
Lookout
Loyal
Milne
Marksman
Musketeer
Myrmidon
Matchless
Meteor
Marne
Martin
Nerissa
Nizam
Noble
Nonpariel
Napier
Nestor
Norman
Norseman
Kandahar
Kimberley
Kashmir
Kelly
Kelvin
Khartoum
Kingston
Kipling
Jervis
Jackal
Jaguar
Juno
Janus
Jersey
Jupiter
Javelin
(Havant)
5 ships unnamed
Cossack
Eskimo
Mashona
Maori
Matabele
Punjabi
Mohawk
Nubian
Ashanti
Bedouin
Sikh
Zulu
Somali
Tartar
(Afridi)
(Gurkha)
Icarus
Ilex
Imperial
Impulsive
Intrepid
Isis
(Imogen)
(Ivanhoe)
Hasty
Havock
Hereward
Hero
Hotspur
(Hostile)
(Hunter)
(Hardy)
(Glowworm)
(Grafton)
(Grenade)
(Gipsy)
(Grenville)
Gallant

Destroyers—*contd.*

Garland
Greyhound
Griffin
Inglefield
Faulknor
Duncan
Fearless
Foresight
Foxhound
Fortune
Forester
Fury
Fame
Firedrake
Echo
Eclipse
Escapade
Express
Electra
Encounter
(Escort)
(Esk)
(Exmouth)
Defender
Diamond
Decoy
Dainty
(Daring)
(Delight)
(Duchess)
(Keith)
(Basilisk)
(Blanche)
(Brazen)
Beagle
Boadicea
Boreas
Brilliant
Bulldog
Achates
(Acheron)
Active
Antelope
Anthony
Arrow
(Acasta)
(Ardent)
Codrington
Amazon
Ambuscade
Veteran
Whitshed
Wild Swan
Witherington
Wivern
Wolverine
Worcester
Vansittart
Venomous
Verity
Volunteer
Wanderer
Whitehall
(Wren)
Wishart
Witch
Broke
Keppel
Campbell
Douglas
Mackay
Malcolm
Montrose
Watchman
Walker
Westcott
Walpole
Wolfhound

Destroyers—*contd.*

Warwick
Winchelsea
(Wessex)
(Whirlwind)
(Venetia)
Vanessa
Vanity
Verdun
Vidette
Vesper
Vivacious
Vanquisher
Vanoc
Vimy
Velox
Versatile
Vortigern
Viceroy
Viscount
Wallace
Wolsey
Woolston
Vega
Wryneck
Winchester
Westminster
Windsor
Vimiera
Wrestler
Valorous
Vivien
(Valentine)
(Wakeful)
(Whitley)
Scimitar
Scout
Thanet
Tenedos
Thracian
Stronghold
(Sturdy)
Saladin
Sabre
Sardonyx
Shikari

R.A.N.

Arunta
Warramunga
Stuart
Waterhen
Voyager
Vampire
Vendetta

R.C.N.

Assiniboine
Ottawa
Restigouche
St. Laurent
(Fraser)
(Margaree)
Saguenay
Skeena

N.B.—50 ex-U.S. Destroyers are omitted

Torpedo Boats.

Ten boats
No. 24
25
22
102
103
101
100
14 to 19
1 to 12

R.A.N.

12 *boats*

S. AFRICA.

2 *boats*

EIRE

2 *boats*

Motor Patrol Boats, etc.

M.A.S.B. 1 to 6
D.C.B. 1

STRAITS SETTLEMENTS

Pahlawan
Panglima
Panji
Peningat

Submarines.

Tigris
Torbay
Triton
Triumph
(Triad)
Truant
Tetrarch
Thunderbolt
Trident
Taku
Talisman
Tribune
Tuna
(Tarpon)
(Thistle)
4 unnamed
Porpoise
Rorqual
Cachalot
(Grampus)
(Narwhal)
(Seal)
(Thames)
Severn
Clyde
(Rainbow)
Regent
(Regulus)
Rover

Submarines—*contd.*

Parthian
Pandora
Perseus
Proteus
(Phoenix)
(Odin)
(Orpheus)
(Oswald)
(Oxley)
Olympus
Osiris
Otus
Otway
Oberon
L 23
L 26
L 27
Sealion
Seawolf
Snapper
Sunfish
(Sterlet)
(Shark)
(Salmon)
(Spearfish)
(Seahorse)
(Starfish)
(Swordfish)
Sturgeon
Ursula
Unity
(Undine)
H 28
H 31
H 32
H 33
H 34
H 43
H 44
(H 49)
H 50

Escort Vessels.

Atherstone
Berkeley
Cattistock
Cleveland
Cotswold
Cottesmore
Eglinton
Exmoor
Fernie
Garth
Hambledon
Holderness
Mendip
Meynell
Pytchley
Quantock
Quorn
Southdown
Tynedale
Whaddon

Sloops, Escort type.

Erne
Ibis
Black Swan
Flamingo
Egret
Auckland
Pelican
(Bittern)

Sloops, Escort Type—*contd.*

Stork
Enchantress
Aberdeen
Fleetwood
Falmouth
Milford
Weston
Fowey
Bideford
Shoreham
Rochester
Hastings
Bridgewater
Sandwich
(Dundee)
(Penzance)
Lupin
Foxglove
Rosemary

R.A.N.

Parramatta
Warrego
Yarra
Swan
Ballarat
Bathurst
Lismore
7 more

Sloops, Patrol type

Guillemot
Pintail
Shearwater
Widgeon
Kittiwake
Sheldrake
Mallard
Puffin
Kingfisher
PC 74

R.I.N.

(Pathan)

Fleet Minesweepers.

10 *unnamed*
Bangor
Blackpool
Bridlington
Bridport
Blyth
Cromarty
Dunbar
Peterhead
Beaumaris
Boston
Polruan
Rye
Ilfracombe
Llandudno
Rothesay
Tenby
Rhyl
Romney
Sidmouth
Stornoway
Halcyon
Harrier
Hussar

COMPLETE LIST OF SHIPS OF THE ROYAL NAVY—*continued.*

Fleet Minesweepers—*contd.*

Speedwell
Speedy
Gossamer
Salamander
Niger
Hebe
Sharpshooter
Leda
Seagull
Bramble
Britomart
Gleaner
Hazard
Jason
(Skipjack)
(Sphinx)
(Dundalk)
(Dunoon)
Aberdare
Abingdon
Albury
Alresford
Bagshot
Fareham
Fermoy
Harrow
Huntly
Lydd
Pangbourne
Ross
Saltash
Saltburn
Selkirk
Stoke
Sutton
Elgin
Tedworth
Widnes

R.C.N.

Cowichan
Nipigon
32 *others*

Motor Minesweepers.

No. 1
2

River Gunboats.

1 *unnamed*
Locust
(*Mosquito*)
Dragonfly
Grasshopper
Scorpion
Robin
Sandpiper
Falcon
Gannet
Peterel
Seamew
Tern
Aphis
Cicala
Cockchafer
Cricket
Gnat

River Gunboats —*contd.*

Ladybird
Mantis
Moth
Scarab
Tarantula

Training Ships.

Vindictive
Iron Duke

Target Ship.

Centurion

Monitors.

Erebus
Terror
Marshal Soult

Netlayers.

Protector
Guardian

Aircraft Tenders, etc.

Unicorn
Albatross
Argus
Pegasus

Depôt Ships.

1 *unnamed*
Adamant
Hecla
Tyne
Maidstone
Forth
Woolwich
Medway
Resource
Titania
Alecto
Lucia
Greenwich
Cyclops

R.A.N.

Penguin

Surveying Ships.

Franklin
Scott
Folkestone
Scarborough
Challenger
Fitzroy
Kellett
Herald
Endeavour

R.A.N.

Moresby

R.I.N.

Investigator

Corvettes.

Fleur de Lys
55 *others*

R.C.N.

Banff
Chanby
52 *others*

Trawlers.

Acacia
Almond
Ash
Bay
Birch
Blackthorn
Chestnut
Deodar
Elm
Fir
Hazel
Mangrove
Olive
Rowan
Pine
Walnut
Whitethorn
Wistaria
(*Juniper*)
(*Hickory*)
(Mastiff)
Basset
Guava
Arctic Ranger
Arsenal
Bandolero
ex-Barnett
Bedfordshire
Bengali
Brontes
Cambridgeshire
Canadian Prince
Cape Argona
Cape Comorin
Cayton Wyke
Compton
Daneman
Davy
Derby County
Drangey
Hampshire
Huddersfield Town
Istria
Kelt
(Kingston Alalite)
Kingston Andalusite
Kingston Chrysolite
Kingston Olivine
Kirkella
Lady Beryl
Lady Elsa
Leeds United
Leyland
Loch Melfort
Loch Tulla
Lord Hotham
Lord Lloyd
Lord Plender
Lord Wakefield
Man o' War
ex-Matabele
Mildenhall
Oriental Star
ex-Quantock

Trawlers—*contd.*

Regal
St. Amandus
St. Andronicus
St. Arcadius
St. Attalus
Saon
Sindonis
Spaniard
Spurs
Stafnes
Stella Capella
Thornwick Bay
Turcoman
Vascama
Victorian
Wellard
York City
(Cape Chelyuskin)
(Kingston Cornelian)
(Kingston Galena)
(Peridot)
(Westella)
(Stella Dorado)
Agate
(Amethyst)
Sapphire
Topaze
Tourmaline
Turquoise
Pearl
Jasper
Ruby
Cornelian
Amber
Coral
Beryl
Jade
Moonstone
Vulcan
Lilac
Sycamore
Magnolia
Cypress
Hawthorn
Syringa
Willow
Alder
Beech
Berberis
Hornbeam
Cedar
Holly
Laurel
Larch
Maple
Oak
Redwood
(Myrtle)
(Tamarisk)
(James Ludford)
Blackwater
Boyne
Colne
Doon
Eden
Excellent
Foyle
Moy
Ouse
Pembroke
Dee
Garry
Kennet
Liffey
(Northern Rover)
(Aragonite)
(Washington)
(William Hallett)
(Evelina)
(Sedgefly)
(Loch Doon)
(Valdora)

Trawlers—*contd.*

(Fort Royal)
(Robert Bowen)
(Fifeshire)
(Benvolio)
(Maida)
(Loch Assater
(Rutlandshire)
(Hammond)
(Larwood)
(Bradman)
(Cape Siretoko)
(Warwickshire)
(Aston Villa)
(Gaul)
(Jardine)
(St. Goran)
(Rifsnes)
(Charles Boyes)
(Cape Passaro
(Melbourne)
(Argyllshire)
(Calvi)
(Blackburn Rovers)
(Polly Johnson)
(Thomas Bartlett)
(Thuringia)
(Ocean Sunlight)
(Crestflower)
(Campina)
(Rodino)
(Fleming)
(Staunton)
(Cape Finisterre)
(Marsona)
(Drummer)
(Oswaldian)
(River Clyde)
(Pyrope)
(Elizabeth Angela)
(Resparko)
(Royalo)
(Loch Inver)
(Recoil)
(Comet)
(Kingston Sapphire)
(Sea King)
(Resolvo)
(Listrac)
(Vella)
(Lord Stamp)
(Waveflower)
(Joseph Button)
(Lord Inchcape)
(Tilbury Ness)
(Rinovia)
(Sevra)
(Stella Orion)
(William Wesney)
(Calverton)
(Ethel Taylor)
(Kennymore)

R.I.N.

Madras

S. AFRICA

Crassula
Kommetjo

R.C.N.

Comox
Fundy
Gaspé
Nootka
Armentières
Arleux
Arras
Givenchy

NEW ZEALAND

Kiwi
Moa
Tui
Wakakura
3 *others*

Boom Defence Vessels.

Bayonet
Bownet
Burgonet
Dragonet
Falconet
Magnet
Martinet
Planet
Plantagenet
Signet
Sonnet
Barbarian
Barbette
Barbican
Barbrook
Barcastle
Barrage
Barranca
Barricade
Barrier
Barcombe
Barcroft
Barfair
Barfield
Barlane
Barlight
Barndale
Barnwell
Barlow
Barmouth
Barnehurst
Barnstone
4 *others*
Jennet
Punnet
Rennet
Quannet
Fastnet
Dunnet
Coronet

R.A.N.

Kangaroo
Koala
Kookaburra

Drifters.

Brine
Cascade
Cloud
Cold Snap
Crescent Moon
Ebbtide
Eddy
Fumarole
Halo
Harmattan
Horizon
Indian Summer
Landfall
Leeward
Lunar Bow
Mist
Neontide
Onyx
Raleigh
Seabreeze
Sheen

Drifters—*contd.*

Shower
Sundown
Sunset
Whirlpool
(Ray of Hope)
(Boy Roy)
(Girl Pamela)
(Girl Mary)
(Paxton)
(Summer Rose)
(Girl Helen)
(Xmas Rose)
(Harvest Gleaner)
(Reed)

Coastal Minelayers.

Linnet
Redstart
Ringdove
Plover
Medusa
Melpomene
Minerva

Cable Vessels.

Lasso
Kilmun

Tenders.

Bloodhound
Dwarf
Elfin
Redwing
Nightingale
Vernon

Fleet Tugs.

Freebooter
Brigand
Buccaneer
Bandit
Marauder
Resolve
Respond
Retort
Rollicker
Roysterer
(St. Fagan)
St. Abbs
St. Blazey
St. Breock
St. Clears
St. Cyrus
St. Day
St. Dogmael
St. Issey
St. Just
St. Martin
St. Mellons
St. Monance
St. Omar
(Saucy)

NEW ZEALAND

Toia

Petrol Carriers.

Petrobus
Petrella

Oilers.

6 *unnamed*
Cairndale
Cedardale
Abbeydale
Arndale
Aldersdale
Bishopdale
Boardale
Broomdale
Oleander
Olna
Olcades
Oligarch
Olynthus
Olwen
War Afridi
War Bahadur
War Mehtar
War Brahmin
War Diwan
War Bharata
War Nawab
War Nizam
War Pindari
War Sudra
War Hindoo
War Krishna
War Pathan
War Sirdar
War Sepoy
Appleleaf
Cherryleaf
Plumleaf
Brambleleaf
Orangeleaf
Pearleaf
Mixol
Thermol
Belgol
Celerol
Fortol
Prestol
Rapidol
Slavol
Francol
Montenol
Serbol
Birchol
Boxol
Ebonol
Elderol
Elmol
Larchol
Limol
Hickorol
Distol
Philol
Scotol
Kimmerol
Viscol

R.A.N.

Kurumba

Fleet Supply Ship.

Reliant

Store Carriers

Bacchus
Robert Dundas
Robert Middleton

NAMES OF EXISTING WARSHIPS OF THE BRITISH EMPIRE (with those lost since Sept. 3, 1939), showing the number of ships which have borne each name and the date of its first being adopted by the Royal Navy.

Compiled from the records of the late Commander J. A. RUPERT-JONES, R.D., R.N.R., by T. D. MANNING. *(See also Addenda)*

ABBEYDALE (1st), 1937
ABDIEL (2nd), 1915
ABERDARE (1st), 1917
ABERDEEN (2nd), 1916
ABINGDON (1st), 1917
ACACIA (2nd), 1915
ACADIA (1st), 1915
ACASTA (3rd), 1797
ACHATES (5th), 1573
ACHERON (6th), 1803
ACHILLES (9th), 1744
ACTIVE (23rd), 1758
ADAMANT (3rd), 1779
ADELAIDE (7th), 1803
ADVENTURE (20th), 1594
ADVERSUS (1st), 1931
AFRIDI (2nd), 1907
AGATE (2nd), 1917
AJAX (8th), 1767
ALACHASSE (1st), 1931
ALBATROSS (12th), 1796
ALBURY (1st), 1917
ALDER (1st), 1939
ALDERSDALE (1st), 1937
ALECTO (4th), 1781
ALMOND (1st), 1939
ALRESFORD (1st), 1918
AMAZON (9th), 1745
AMBER (2nd), 1917
AMBUSCADE (6th), 1746
AMETHYST (9th), 1793
ANTELOPE (13th), 1546
ANTHONY (2nd), 1417
APHIS (1st), 1915
APPLELEAF (1st), 1917
ARANMORE (1st), 1890
ARDENT (11th), 1764
ARETHUSA (8th), 1759
ARGENTEUIL (1st), 1916
ARGUS (11th), 1792
ARGYLE (3rd), 1776
ARK ROYAL (3rd), 1587
ARLEUX (1st), 1918
ARMENTIERES (1st), 1918
ARNDALE (1st), 1937
ARRAS (1st), 1918
ARROW (8th), 1821
ASH (1st), 1939
ASHANTI (1st), 1936
ATHERSTONE (2nd), 1915
AUCKLAND (3rd), 1802
AURORA (9th), 1758
AUSTRALIA (3rd), 1886

BACCHUS (6th), 1806
BAGSHOT (1st), 1917
BANDIT (1st), 1937
BANGOR (1st), 1939
BARBARIAN (1st), 1937
BARBETTE (2nd), 1806
BARBICAN (1st), 1936
BARBROOK (1st), 1937
BARCASTLE (1st), 1937
BARCOMBE (1st), 1937
BARCROFT (1st), 1937
BARFAIR (1st), 1937
BARFIELD (1st), 1937
BARHAM (3rd), 1811
BARLANE (1st), 1937
BARLIGHT (1st), 1937
BARLOW (1st), 1937
BARMOUTH (1st), 1937
BARNDALE (1st), 1939
BARNEHURST (2nd), 1937
BARNET (1st), 1934
BARNSTONE (2nd), 1937
BARRAGE (1st), 1937
BARRANCA (1st), 1937
BARRICADE (1st), 1937
BARRIER (1st), 1937
BASILISK (10th), 1695
BASSET (1st), 1934
BAY (1st), 1939
BAYONET (1st), 1937
BEAGLE (8th), 1804
BEATTY (1st), 1937
BEDOUIN (2nd), 1915
BEECH (1st), 1939
BELFAST (1st), 1936
BELGOL (1st), 1917
BELLECHASSE (1st), 1912
BERBERIS (2nd), 1915
BERENS (1st), 1921
BERKELEY (1st), 1939
BERNIER (1st), 1918
BERWICK (10th), 1679
BERYL (5th), 1915
BIDEFORD (5th), 1695
BIRCH (2nd), 1915
BIRCHOL (1st), 1917
BIRMINGHAM (2nd), 1912
BIRNIE (1st), 1921
BISHOPDALE (1st), 1937
BITTERN (7th), 1796
BLACKPOOL (1st), 1939
BLACK SWAN (1st), 1937
BLACKTHORN (2nd), 1915
BLACKWATER (2nd), 1903
BLANCHE (12th), 1779
BLOODHOUND (4th), 1801
BLYTH (1st), 1939
BOADICEA (5th), 1797
BOARDALE (1st), 1937
BONAVENTURE (10th), 1489
BOREAS (6th), 1757
BOWNET (1st), 1938
BOXOL (1st), 1917
BOYNE (6th), 1692
BRADBURY (1st), 1915
BRAMBLE (8th), 1656
BRAMBLELEAF (1st), 1916
BRANT (1st), 1927
BRIDGEWATER (4th), 1655
BRIDLINGTON (3rd), 1918
BRIDPORT (1st), 1939
BRIGAND (1st), 1937
BRILLIANT (8th), 1696
BRINE (2nd), 1918
BRITOMART (6th), 1808
BROKE (2nd), 1914
BROOMDALE (1st), 1937
BRUCE (2nd), 1917
BUCCANEER (1st), 1937
BULLDOG (7th), 1782
BURGONET (1st), 1938

CACHALOT (2nd), 1915
CAIRNDALE (1st), 1938
CAIRO (2nd), 1916
CALCUTTA (5th), 1795
CALEDON (2nd), 1810
CALYPSO (10th), 1783
CAMPBELL (2nd), 1796
CANBERRA (1st), 1926
CAPETOWN (1st), 1918
CARADOC (2nd), 1846
CARDIFF (2nd), 1652
CARIBOU (1st), 1925
CARLISLE (3rd), 1693
CARTIER (1st), 1910
CASCADE (1st), 1918
CATTISTOCK (2nd), 1917
CEDAR (2nd), 1916
CEDARDALE (1st), 1938
CELEROL (1st), 1916
CENTERION (8th), 1650
CERBERUS (9th), 1758
CERES (6th), 1777
CEYLON (4th), 1805
CHALLENGER (8th), 1806
CHARYBDIS (5th), 1809
CHERRYLEAF (1st), 1917
CHERWELL (2nd), 1903
CHESTNUT (2nd), 1656
CHRYSANTHEMUM (2nd), 1917
CICALA (1st), 1915
CITADELLE (1st), 1932
CLEOPATRA (7th), 1779
CLEVELAND (4th), 1671
CLIVE (2nd), 1882
CLOUD (1st), 1918
CLYDE (8th), 1796
COCHRANE (2nd), 1905
COCKCHAFER (4th), 1795
CODRINGTON (1st), 1929
COLD SNAP (1st), 1918
COLNE (2nd), 1905
COLOMBO (1st), 1917
CORAL (1st), 1939
CORNELIAN (3rd), 1655
CORNFLOWER (1st), 1915
CORNWALL (6th), 1692
CORNWALLIS (7th), 1777
CORONET (1st), 1934
COSSACK (9th), 1805
COTSWOLD (2nd), 1917
COTTESMORE (2nd), 1917
COURAGEOUS (3rd), 1761
COVENTRY (4th), 1658
CRUSADER (2nd), 1909
CUMBERLAND (9th), 1695
CURACOA (4th), 1809
CURLEW (11th), 1795
CYCLOPS (4th), 1779
CYPRESS (2nd), 1760

DAINTY (4th), 1589
DAISY (8th), 1855
DANAE (5th), 1759
DARING (7th), 1804
DAUNTLESS (5th), 1804
DECOY (5th), 1810
DEE (6th), 1814
DEFENDER (6th), 1797
DELHI (1st), 1917
DELIGHT (14th), 1583
DEODAR (1st), 1939
DEPTFORD (8th), 1652
DERBY (2nd), 1916
DESPATCH (18th), 1692
DEVONSHIRE (7th), 1692
DIAMOND (14th), 1652
DIANA (12th), 1757
DIDO (5th), 1784
DIOMEDE (4th), 1781
DISTOL (1st), 1916
DOLLARD (1st), 1913
DOON (3rd), 1904
DORSETSHIRE (3rd), 1694
DOUGLAS (1st), 1917
DRAGON (18th), 1512
DRAGONET (1st), 1938
DRAGONFLY (3rd), 1906
DRUID (6th), 1760
DUCHESS (5th), 1652
DUKE OF YORK (7th), 1763
DUNCAN (5th), 1804
DUNDALK (1st), 1918
DUNDEE (3rd), 1915
DUNEDIN (2nd), 1917
DUNNET (1st), 1936
DUNOON (1st), 1918
DURBAN (2nd), 1918
DWARF (6th), 1826

EAGLE (20th), 1592
EBBTIDE (1st), 1924
EBONOL (1st), 1917
ECHO (11th), 1758
ECLIPSE (10th), 1715
EDDY (1st), 1918
EDEN (3rd), 1814
EDINBURGH (6th), 1707
EFFINGHAM (1st), 1917
EGLINTON (2nd), 1916
EGRET (3rd), 1919
ELDEROL (1st), 1917
ELECTRA (8th), 1806
ELFIN (3rd), 1849
ELGIN (2nd), 1814
ELM (2nd), 1914
ELMOL (1st), 1917
EMERALD (12th), 1762
ENCHANTRESS (7th), 1802
ENCOUNTER (5th), 1805
ENDEAVOUR (15th), 1652
ENTERPRISE (15th), 1709
EREBUS (5th), 1806
ERNE (6th), 1813
ESCAPADE (1st), 1933
ESCORT (7th), 1757
ESK (5th), 1813
ESKIMO (1st), 1936
ESTEVAN (1st), 1912
EURYALUS (5th), 1803
EXCELLENT (8th), 1787
EXETER (5th), 1680
EXMOOR (1st), 1939
EXMOUTH (4th), 1841
EXPRESS (8th), 1695

FALCON (28th), 1212
FALCONET (1st), 1937
FALMOUTH (12th), 1652
FAME (11th), 1653
FAREHAM (1st), 1917
FASTNET (2nd), 1904
FAULKNOR (2nd), 1914
FEARLESS (7th), 1794
FERMOY (1st), 1917
FERNIE (1st), 1939
FESTUBERT (1st), 1918
FIJI (1st), 1937
FIR (1st), 1939
FIREDRAKE (5th), 1648
FITZROY (1st), 1919
FLAMINGO (2nd), 1876
FLEETWOOD (3rd), 1917
FLEURDELIS (1st), 1929
FOLKESTONE (7th), 1299
FORESIGHT (5th), 1570
FORESTER (11th), 1657
FORMIDABLE (5th), 1777
FORTH (4th), 1812
FORTOL (1st), 1917
FORTUNE (22nd), 1512
FOWEY (10th), 1696
FOXGLOVE (1st), 1914
FOXHOUND (7th), 1806
FOYLE (2nd), 1903
FRANCOL (1st), 1917
FRANKLIN (2nd), 1916
FRASER (2nd), 1916
FREEBOOTER (1st), 1939
FROBISHER (1st), 1916
FUMAROLE (1st), 1918
FURIOUS (5th), 1794
FURY (10th), 1779

GALATEA (7th), 1776
GALLANT (3rd), 1798
GAMBIA (1st), 1938
GANNET (8th), 1800
GARLAND (15th), 1242
GARRY (2nd), 1905
GARTH (2nd), 1917
GIPSY (6th), 1799
GIVENCHY (1st), 1918
GLASGOW (8th), 1707
GLEANER (7th), 1809
GLENCOE (1st), 1899
GLITTER (1st), 1918
GLORIOUS (1st), 1915
GLOUCESTER (10th), 1654
GLOWWORM (3rd), 1906
GNAT (4th), 1856
GOSSAMER (3rd), 1823
GRAFTON (7th), 1675
GRAMPUS (11th), 1740
GRASSHOPPER (8th), 1776
GREENWICH (6th), 1666
GRENADE (2nd), 1918
GRENVILLE (3rd), 1764
GREYHOUND (23rd), 1545
GRIFFIN (16th), 1656
GRIMSBY (2nd), 1916
GUARDIAN (2nd), 1783
GUAVA (1st), 1939
GUILLEMOT (2nd), 1916
GURKHA (3rd), 1888

HALCYON (5th), 1803
HALO (1st), 1918
HAMBLEDON (2nd), 1917
HARDY (8th), 1797
HARMATTAN (1st), 1918
HARRIER (9th), 1804
HARROW (1st), 1918
HASTINGS (6th), 1695
HASTY (6th), 1798
HAVANT (2nd), 1918
HAVOCK (7th), 1796
HAWKINS (1st), 1917
HAWTHORN (4th), 1546
HAZARD (8th), 1711
HAZEL (2nd), 1914
HEBE (7th), 1782
HECLA (7th), 1798
HERALD (6th), 1806
HEREWARD (2nd), 1913
HERMES (8th), 1796
HERMIONE (3rd), 1782
HERO (9th), 1759
HICKOROL (1st), 1917
HICKORY (1st), 1939
HINDUSTAN (5th), 1795
HOBART (2nd), 1794
HOLDERNESS (2nd), 1916
HOLLY (5th), 1808
HOME (1st), 1900
HOOD (3rd), 1849
HORIZON (1st), 1918
HORNBEAM (1st), 1939
HOSTILE (1st), 1935
HOTSPUR (5th), 1810
HUNTER (16th), 1646
HUNTLEY (1st), 1918
HUSSAR (8th), 1757
HYPERION (2nd), 1807
IBIS (3rd), 1918
ICARUS (5th), 1814
ILEX (1st), 1935
ILLUSTRIOUS (4th), 1789
IMOGEN (6th), 1801
IMPERIAL (1st), 1935
IMPLACABLE (4th), 1805
IMPULSIVE (1st), 1935
INDEFATIGABLE (5th), 1784
INDIAN SUMMER (1st), 1918
INDOMITABLE (3rd), 1907
INDUS (4th), 1807
INGLEFIELD (1st), 1935
INTREPID (7th), 1747
INVESTIGATOR (9th), 1798
IRON DUKE (2nd), 1870
ISIS (7th), 1743
IVANHOE (3rd), 1913

JACKAL (7th), 1779
JADE (1st), 1939
JAGUAR (1st), 1937
JAMAICA (7th), 1710
JAMES LUDFORD (1st), 1918
JANUS (9th), 1778
JASON (12th), 1673
JASPER (10th), 1808
JAVELIN (3rd), 1914
JELLICOE (1st), 1937
JENNET (2nd), 1539
JERSEY (6th), 1654
JERVIS (1st), 1937
JUNIPER (2nd), 1813
JUNO (7th), 1757
JUPITER (6th), 1778

KANDAHAR (1st), 1937
KANGAROO (7th), 1795
KASHMIR (1st), 1937
KEITH (1st), 1929
KELLETT (1st), 1919
KELLY (1st), 1937
KELVIN (2nd), 1917
KEMPENFELT (2nd), 1915
KENNET (2nd), 1904
KENT (9th), 1652
KENYA (1st), 1937
KEPPEL (2nd), 1779
KHARTOUM (1st), 1937
KIMBERLEY (4th), 1918
KIMMEROL (1st), 1917
KING GEORGE V (2nd), 1911
KINGFISHER (14th), 1675
KINGSTON (4th), 1697
KIPLING (1st), 1937
KITTIWAKE (2nd), 1918
KOALA (1st), 1936
KOOKABURRA (1st), 1938
KURUMBA (1st), 1916
KYLE (1st), 1913

LABURNUM (2nd), 1915
LADYBIRD (1st), 1916
LADY GREY (1st), 1906
LADY LAURIER (1st), 1902
LAFOREY (2nd), 1913
LANCE (2nd), 1913
LANDFALL (1st), 1918
LARCH (1st), 1939
LARCHOL (1st), 1917
LARNE (4th), 1814
LASSO (2nd), 1915
LATONA (4th), 1781
LAUREL (13th), 1651
LAURENTIAN (1st), 1902

NAMES OF EXISTING WARSHIPS OF THE BRITISH EMPIRE—*continued.*

LAURIER (1st), 1937
LAWRENCE (3rd), 1350
LEANDER (6th), 1780
LEDA (6th), 1783
LEEWARD (1st), 1918
LEGION (2nd), 1913
LEITH (3rd), 1782
LIFFEY (4th), 1813
LIGHTNING (10th), 1691
LILAC (2nd), 1915
LILLOET (1st), 1908
LIMOL (1st), 1917
LINNET (11th), 1797
LION (17th), 1511
LIVELY (20th), 1709
LIVERPOOL (10th), 1741
LOCUST (4th), 1801
LONDON (10th), 1636
LONDONDERRY (1st), 1934
LOOKOUT (2nd), 1913
LOWESTOFT (6th), 1697
LOYAL (2nd), 1913
LUCIA (2nd), 1914
LUNAR BOW (1st), 1918
LUPIN (1st), 1915
LYDD (1st), 1918

MACDONALD (1st), 1937
MACKAY (1st), 1918
MADRAS (3rd), 1795
MAGNET (8th), 1807
MAGNOLIA (2nd), 1915
MAIDSTONE (8th), 1654
MAINE (2nd), 1908
MALASPINA (1st), 1913
MALAYA (1st), 1914
MALCOLM (1st), 1918
MALLARD (4th), 1801
MANCHESTER (1st), 1936
MANGROVE (1st), 1939
MANXMAN (2nd), 1915
MAORI (2nd), 1908
MAPLE (1st), 1939
MARAUDER (1st), 1938
MARKSMAN (2nd), 1915
MARNE (2nd), 1915
MARSHAL SOULT (1st), 1915
MARTIN (12th), 1651
MARTINET (1st), 1937
MASHONA (1st), 1936
MASTIFF (7th), 1797
MATABELE (1st), 1936
MATCHLESS (2nd), 1914
MAURITIUS (1st), 1937
MEDUSA (6th), 1788
MEDWAY (7th), 1693
MELPOMENE (6th), 1794
MENDIP (1st), 1939
METEOR (9th), 1797
MEYNELL (2nd), 1917
MILFORD (8th), 1660
MILNE (2nd), 1914
MINERVA (15th), 1759
MIST (1st), 1918
MIYOI (1st), 1916
MOHAWK (8th), 1798
MONTCALM (1st), 1904
MONTENOL (1st), 1917
MONTROSE (2nd), 1819
MOONSTONE (1st), 1939
MORESBY (2nd), 1915
MOSQUITO (12th), 1777
MOTH (2nd), 1906
MOY (2nd), 1904
MURRAY STEWART (1st), 1918
MUSKETEER (2nd), 1915

MYRMIDON (6th), 1781
MYRTLE (6th), 1807

NAIAD (3rd), 1797
NAPIER (2nd), 1915
NARWHAL (2nd), 1915
N. B. MACLEAN (1st), 1930
NELSON (8th), 1799
NEPTUNE (16th), 1683
NERISSA (3rd), 1916
NESTOR (3rd), 1781
NEWCASTLE (7th), 1654
NIGER (6th), 1759
NIGERIA (1st), 1937
NIGHTINGALE (10th), 1651
NIZAM (2nd), 1916
NOBLE (2nd), 1915
NONPAREIL (4th), 1580
NOONTIDE (1st), 1918
NORFOLK (4th), 1693
NORMAN (2nd), 1916
NORSEMAN (2nd), 1916
NORTHERN RANGER (1st), 1936
NUBIAN (3rd), 1903

OAK (3rd), 1652
OBERON (5th), 1805
OCEAN EAGLE (1st), 1919
ODIN (4th), 1807
OLCADES (1st), 1937
OLEANDER (1st), 1922
OLIGARCH (1st), 1937
OLIVE (2nd), 1914
OLNA (1st), 1921
OLWEN (1st), 1937
OLYMPUS (2nd), 1918
OLYNTHUS (1st), 1937
ONYX (8th), 1808
ORANGELEAF (1st), 1917
ORION (6th), 1787
ORPHEUS (7th), 1773
OSIRIS (4th), 1916
OSWALD (1st), 1928
OTTAWA (1st), 1938
OTUS (1st), 1928
OTWAY (2nd), 1914
OUSE (2nd), 1905
OXLEY (1st), 1925

PANDORA (10th), 1779
PANGBOURNE (1st), 1918
PARRAMATTA (3rd), 1909
PARTHIAN (6th), 1808
PASHA (2nd), 1888
PEARL (14th), 1651
PEARLEAF (1st), 1917
PEGASUS (11th), 1598
PELICAN (21st), 1577
PEMBROKE (12th), 1655
PENELOPE (8th), 1778
PENGUIN (9th), 1751
PENZANCE (3rd), 1695
PERSEUS (5th), 1776
PERTH (2nd), 1918
PETEREL (8th), 1777
PETERHEAD (2nd), 1918
PETRELLA (1st), 1918
PETROBUS (1st), 1918
PETRONEL (1st), 1918
PHILOL (1st), 1916
PHOEBE (7th), 1795
PHOENIX (17th), 1546
PINE (1st), 1939
PINTAIL (1st), 1937
PLANET (1st), 1937
PLANTAGENET (2nd), 1801

PLOVER (12th), 1652
PLUMLEAF (1st), 1917
POLRUAN (1st), 1939
PORPOISE (7th), 1777
PORTIA (7th), 1809
PRESIDENT (8th), 1646
PRESTOL (1st), 1917
PREVENTOR (1st), 1929
PRINCE OF WALES (12th), 1763
PROSPERO (2nd), 1837
PROTECTOR (5th), 1755
PROTEUS (2nd), 1777
PUFFIN (2nd), 1918
PUNJABI (1st), 1936
PUNNET (1st), 1939
PYTCHLEY (2nd), 1917

QUANNET (1st), 1939
QUANTOCK (1st), 1939
QUEEN ELIZABETH (1st), 1912
QUORN (2nd), 1917

RAINBOW (9th), 1586
RAMILLIES (5th), 1706
RAPIDOL (1st), 1917
REDSTART (2nd), 1918
REDWING (9th), 1806
REDWOOD (1st), 1939
REGENT (3rd), 1489
REGULUS (3rd), 1785
RELIANT (1st), 1933
RENNET (1st), 1939
RENOWN (10th), 1651
REPULSE (12th), 1595
RESOLUTION (17th), 1667
RESOLVE (1st), 1918
RESOURCE (4th), 1778
RESPOND (1st), 1918
RESTIGOUCHE (1st), 1938
RETORT (1st), 1918
REVENGE (10th), 1575
RINGDOVE (7th), 1806
ROBERT DUNDAS (1st), 1938
ROBERT MIDDLETON (1st), 1938
ROBIN (2nd), 1897
ROCHESTER (4th), 1693
RODNEY (7th), 1759
ROLLICKER (3rd), 1918
RORQUAL (2nd), 1915
ROSEMARY (1st), 1915
ROSS (2nd), 1795
ROTHESAY (1st), 1939
ROVER (11th), 1777
ROWAN (2nd), 1914
ROYAL OAK (7th), 1664
ROYAL SOVEREIGN (7th), 1635
ROYSTERER (1st), 1915
RUBY (11th), 1651
RYE (5th), 1696

SABRE (1st), 1917
SAFEGUARDER (1st), 1929
SAGONA (1st), 1912
SAGUENAY (1st), 1930
ST. ABBS (2nd), 1918
ST. BLAZEY (1st), 1918
ST. BRIOCK (1st), 1918
ST. CLEARS (1st), 1918
ST. CYRUS (1st), 1918
ST. DAY (1st), 1918
ST. DOGMAEL (1st), 1918
ST. FAGAN (1st), 1918
ST. HELIERS (1st), 1918
ST. ISSEY (1st), 1918
ST. JUST (1st), 1918
ST. LAURENT (1st), 1937
ST. MARTIN (2nd), 1691

ST. MELLONS (1st), 1918
ST. MONANCE (1st), 1918
ST. OMAR (1st), 1918
SALADIN (1st), 1917
SALAMANDER (12th), 1544
SALMON (3rd), 1895
SALTASH (3rd), 1746
SALTBURN (1st), 1918
SANDPIPER (2nd), 1897
SANDWICH (10th), 1679
SAPPHIRE (11th), 1651
SARDONYX (1st), 1918
SAUREL (1st), 1929
SCARAB (1st), 1915
SCARBOROUGH (8th), 1691
SCIMITAR (1st), 1917
SCORPION (10th), 1746
SCOTOL (1st), 1917
SCOTT (3rd), 1915
SCOUT (14th), 1577
SCYLLA (4th), 1809
SEABREEZE (1st), 1918
SEAGULL (9th), 1795
SEAHORSE (13th), 1630
SEAL (2nd), 1897
SEALION (2nd), 1918
SEAMEW (4th), 1857
SEAWOLF (2nd), 1918
SELKIRK (1st), 1918
SERBOL (1st), 1917
SEVERN (9th), 1695
SHARK (11th), 1691
SHARPSHOOTER (5th), 1805
SHEARWATER (6th), 1808
SHEEN (1st), 1918
SHEFFIELD (1st), 1935
SHELDRAKE (7th), 1806
SHIKARI (2nd), 1918
SHOREHAM (4th), 1694
SHOWER (1st), 1918
SHROPSHIRE (1st), 1927
SIGNET (3rd), 1666
SIKH (2nd), 1917
SIRIUS (7th), 1786
SKATE (2nd), 1895
SKEENA (1st), 1929
SKIPJACK (5th), 1807
SLAVOL (1st), 1917
SNAPPER (7th), 1804
SOMALI (3rd), 1890
SONNET (1st), 1938
SOUTHAMPTON (5th), 1693
SOUTHDOWN (2nd), 1916
SPEARFISH (1st), 1935
SPEEDWELL (26th), 1559
SPEEDY (7th), 1782
SPHINX (7th), 1748
STARFISH (3rd), 1895
STERLET (1st), 1936
STEWART, WM. J. (1st), 1932
STOKE (1st), 1917
STORK (9th), 1652
STRONGHOLD (1st), 1918
STUART (1st), 1917
STURDY (2nd), 1912
STURGEON (3rd), 1894
SUFFOLK (7th), 1680
SUNDOWN (1st), 1919
SUNFISH (2nd), 1895
SUNSET (1st), 1918
SUSSEX (4th), 1652
SUTTON (1st), 1917
SWAN (24th), 1420
SWORDFISH (3rd), 1895
SYCAMORE (1st), 1935
SYDNEY (3rd), 1814
SYRINGA (3rd), 1917

TAKU (2nd), 1900
TALISMAN (3rd), 1912
TAMARISK (2nd), 1916
TARANTULA (1st), 1915
TARBET (1st), 1916
TARTAR (14th), 1702
TEDWORTH (1st), 1916
TEMERAIRE (6th), 1694
TENBY (2nd), 1915
TENEDOS (4th), 1812
TERN (2nd), 1915
TERROR (9th), 1696
TETRARCH (2nd), 1916
THAMES (9th), 1758
THANET (2nd), 1917
THERMOL (1st), 1916
THETIS (13th), 1717
THISTLE (14th), 1808
THRACIAN (2nd), 1808
TIGRIS (4th), 1813
TITANIA (1st), 1915
TOIA (1st), 1919
TOPAZE (7th), 1793
TORBAY (5th), 1693
TOURMALINE (4th), 1875
TRIAD (2nd), 1915
TRIBUNE (7th), 1796
TRIDENT (7th), 1695
TRINIDAD (3rd), 1806
TRITON (9th), 1702
TRIUMPH (10th), 1561
TRUANT (2nd), 1918
TUNA (3rd), 1915
TURQUOISE (4th), 1876
TYNE (4th), 1814
TYNEDALE (2nd), 1915-

UGANDA (1st), 1938
ULNA (1st), 1909
UNDINE (5th), 1846
UNICORN (10th), 1544
UNITY (13th), 1665
URSULA (3rd), 1916

VALENTINE (2nd), 1418
VALIANT (7th), 1759
VALOROUS (5th), 1804
VAMPIRE (1st), 1916
VANESSA (2nd), 1917
VANITY (1st), 1917
VANOC (1st), 1916
VANQUISHER (1st), 1916
VANSITTART (2nd), 1821
VARENNES (1st), 1911
VEGA (1st), 1916
VELOX (2nd), 1902
VENDETTA (1st), 1916
VENETIA (2nd), 1917
VENOMOUS (1st), 1918
VENTURE (4th), 1787
VERCHERES (1st), 1901
VERDUN (2nd), 1916
VERITY (1st), 1918
VERNON (6th), 1782
VERSATILE (1st), 1917
VESPER (2nd), 1916
VETERAN (6th), 1787
VICEROY (1st), 1916
VICTORIA AND ALBERT (3rd), 1842
VICTORIOUS (5th), 1785
VIDETTE (3rd), 1800
VIKING (3rd), 1909
VIMIERA (2nd), 1808
VIMY (1st), 1928
VINDICTIVE (5th), 1779

VISCOL (1st), 1916
VISCOUNT (1st), 1916
VIVACIOUS (1st), 1917
VIVIEN (1st), 1917
VOLUNTEER (3rd), 1801
VORTIGERN (1st), 1917
VOYAGER (1st), 1917
VULCAN (11th), 1691

WAKAKURA (1st), 1919
WAKEFUL (1st), 1917
WALKER (1st), 1917
WALLACE (1st), 1917
WALNUT (1st), 1939
WALPOLE (2nd), 1917
WANDERER (7th), 1806
WAR APRIDI (1st), 1919
WAR BAHADUR (1st), 1919
WAR BHARATA (1st), 1919
WAR BRAHMIN (1st), 1919
WAR DIWAN (1st), 1919
WAR HINDOO (1st), 1919
WAR KRISHNA (1st), 1919
WAR MEHTAR (1st), 1919
WAR NAWAB (1st), 1919
WAR NIZAM (1st), 1919
WAR PATHAN (1st), 1919
WAR PINDARI (1st), 1919
WAR SEPOY (1st), 1919
WAR SIRDAR (1st), 1919
WAR SUDRA (1st), 1919
WARREGO (2nd), 1911
WARSPITE (6th), 1596
WARWICK (5th), 1644
WATCHMAN (1st), 1917
WATERHEN (1st), 1917
WAVE (3rd), 1855
WELLINGTON (6th), 1810
WELSHMAN (2nd), 1901
WESSEX (1st), 1917
WESTCOTT (1st), 1917
WESTMINSTER (1st), 1917
WESTON (1st), 1931
WHADDON (1st), 1939
WHIRLPOOL (1st), 1918
WHIRLWIND (1st), 1917
WHITEHALL (1st), 1918
WHITETHORN (1st), 1939
WHITLEY (1st), 1917
WHITSHED (1st), 1918
WIDGEON (5th), 1806
WIDNES (1st), 1917
WILD SWAN (2nd), 1876
WILLOW (1st), 1935
WINCHELSEA (6th), 1694
WINCHESTER (6th), 1693
WINDSOR (3rd), 1695
WISHART (1st), 1918
WISTARIA (2nd), 1915
WITCH (1st), 1918
WITHERINGTON (1st), 1918
WIVERN (2nd), 1863
WOLFHOUND (1st), 1917
WOLSEY (1st), 1917
WOLVERINE (8th), 1798
WOOLSTON (1st), 1917
WOOLWICH (9th) 1677
WORCESTER (7th), 1651
WREN (3rd), 1653
WRESTLER (2nd), 1917
WRYNECK (1st), 1917

YARRA (2nd), 1909
YORK (9th), 1660
YPRES (1st), 1918

ZULU (2nd), 1909

WARSPITE (QUEEN ELIZABETH, VALIANT, similar).

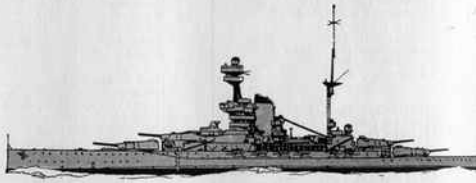
NELSON.
(RODNEY similar, but with catapult on "C" turret.)
(Foretops differ slightly.)

ROYAL SOVEREIGN.

BARHAM.

RESOLUTION.

RAMILLIES.
(Only RESOLUTION has catapult on "X" turret).



REVENGE.

MALAYA.

REPULSE.

RENOWN.

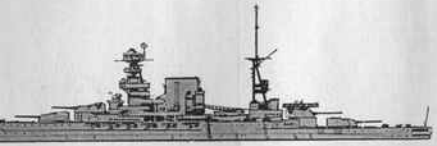
IRON DUKE.

HOOD.

WARSPITE (QUEEN ELIZABETH, VALIANT, similar).

NELSON.
(RODNEY similar, but with catapult on "C" turret.)
(Foretops differ slightly.)

ROYAL SOVEREIGN.



BARHAM.

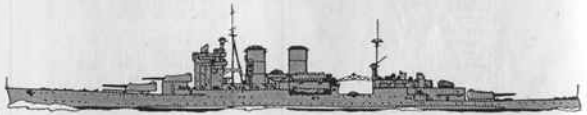
RESOLUTION.

RAMILLIES.
(Only RESOLUTION has catapult on "X" turret).

REVENGE.

MALAYA.

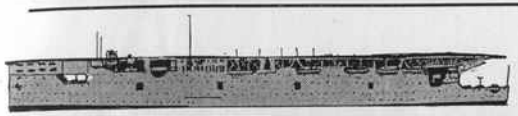
REPULSE.



RENOWN.

IRON DUKE.

HOOD.



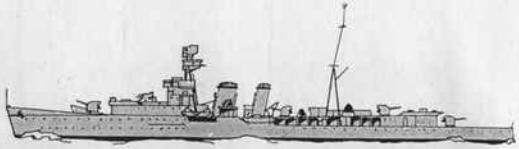
ARGUS.

ARK ROYAL.
(Funnel since heightened)

FURIOUS.

HERMES

EAGLE.



CAIRO, CALCUTTA, CARLISLE, also CURAÇOA, without trawler bow.

COVENTRY.

CALEDON *class*.

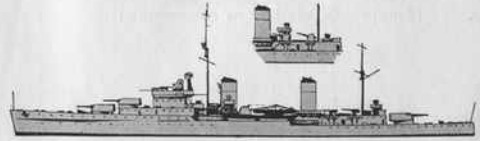
CERES *class*.

COLOMBO, CAPETOWN.
(Trawler bow.) (Reconstructing.)

DANAE, DAUNTLESS, DRAGON.
(No. 3 gun abaft foremast.)

DELHI *group*.
(Trawler bow.)
(DIOMEDE as Part Sketch.)

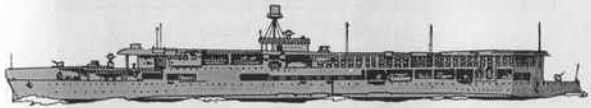
DUNEDIN.



ARETHUSA, GALATEA.
PENELOPE, *also* AURORA (with hangar between funnels)
as Part Sketch.

ARGUS.

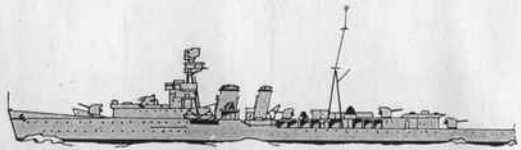
ARK ROYAL.
(Funnel since heightened)



FURIOUS.

HERMES

EAGLE.



CAIRO, CALCUTTA, CARLISLE, also CURAÇOA, without trawler bow.

COVENTRY.

CALEDON *class.*

CERES *class.*

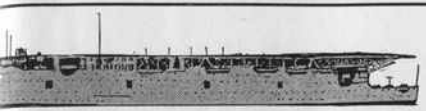
COLOMBO, CAPETOWN.
(Trawler bow.) (Reconstructing.)

DANAE, DAUNTLESS, DRAGO
(No. 3 gun abaft foremast.

DELHI *group.*
(Trawler bow.)
(DIOMEDE as Part Sketc

DUNEDIN.

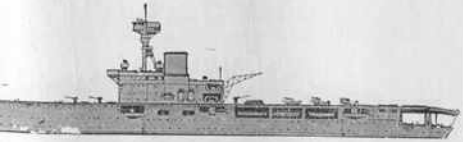
ARETHUSA, GALATEA.
PENELOPE, *also* AURORA (with hangar bet
as Part Sketch.



ARGUS.

ARK ROYAL.
(Funnel since heightened)

FURIOUS.



HERMES

EAGLE.

CAIRO, CALCUTTA, CARLISLE, also CURAÇOA, without trawler bow.

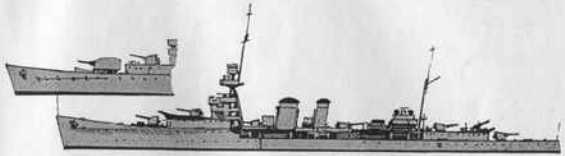
COVENTRY.

CALEDON *class*.

CERES *class*.

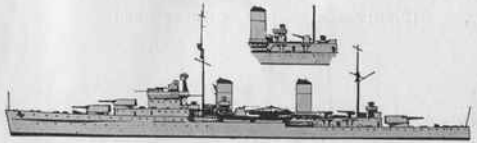
COLOMBO, CAPETOWN.
(Trawler bow.) (Reconstructing.)

DANAE, DAUNTLESS, DRAGON.
(No. 3 gun abaft foremast.)



DELHI *group*.
(Trawler bow.)
(DIOMEDE as Part Sketch.)

DUNEDIN.



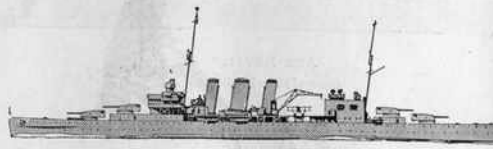
ARETHUSA, GALATEA.
PENELOPE, *also* AURORA (with hangar between funnels)
as Part Sketch.

LEANDER *class.*
(NEPTUNE has shorter foremast and AJAX has hers stepped slightly further aft.)

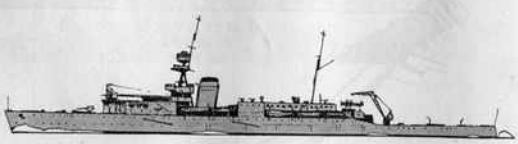
EXETER.

CUMBERLAND, *also* SUFFOLK, with high syren brackets.

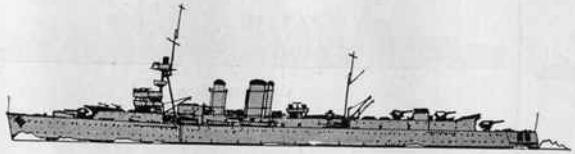
YORK.



BERWICK. CORNWALL.
AUSTRALIA, CANBERRA—R.A.N.
(*Also* KENT, without hangar and with sternwalk.)

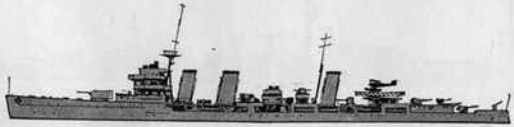


VINDICTIVE.

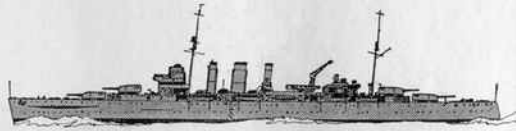


ADVENTURE.

SOUTHAMPTON *class.*
(BIRMINGHAM has bow as ADVENTURE.)

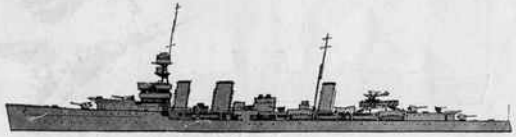


ENTERPRISE.

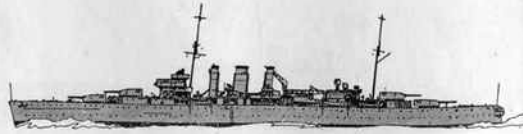


LONDON *class.*

EDINBURGH, BELFAST.

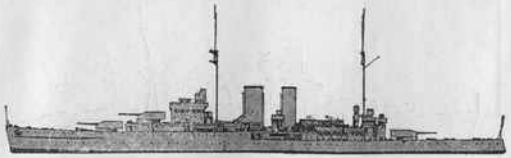


EMERALD.



DORSETSHIRE *class.*

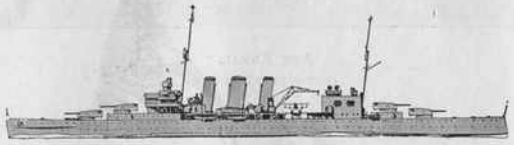
LEANDER *class.*
shorter foremast and AJAX has hers stepped slightly further aft.)



EXETER.

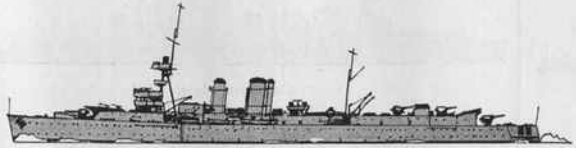
CUMBERLAND, *also* SUFFOLK, with high syren brackets.

YORK.



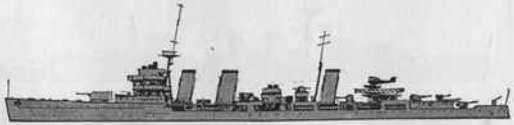
BERWICK. CORNWALL.
AUSTRALIA, CANBERRA—R.A.N.
(*Also* KENT, without hangar and with sternwalk.)

VINDICTIVE.

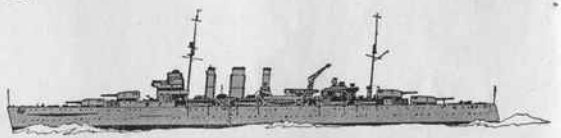


ADVENTURE.

SOUTHAMPTON *class.*
GHAM has bow as ADVENTURE.)



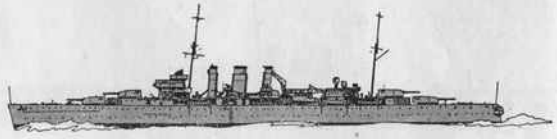
ENTERPRISE.



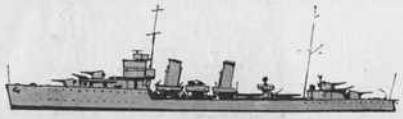
LONDON *class.*

EDINBURGH, BELFAST.

EMERALD.



DORSETSHIRE *class.*

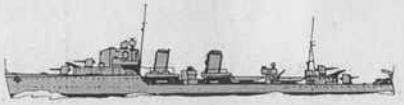


"A" AND "B" *classes.*
(In these and following classes, H.S.M.S. gear is sometimes absent.)

"E" AND "F" *classes.*
(Except EXPRESS.)
(Inset "D" *class.*)
Also DUNCAN, with C. N.

EXPRESS.
(Note mainmast and whaler on fo'c'sle.)
(Carries reduced armament when serving as Minelayer.)

"G" AND "H" *classes except* HEREWARD and HERO.
(Heights of funnels vary.)



"I" *class*, also HEREWARD and HERO.

JAVELIN *class.*

INGLEFIELD.

FAULKNOR.

CODRINGTON.
(Now has tall mainmast.)

TRIBAL *class.*

CAMPBELL *type.*
(Mainmast now taller.)

BROKE *type.*
(All have tall mainmast.)

ADMIRALTY "S" *class.*

SKATE.

VETERAN *group*.
(WILD SWAN, tall mainmast; part sketch, WITHERINGTON, WIVERN, WOLVERINE, WORCESTER.)

WISHART, WITCH.

AMAZON.

AMBUSCADE.

ADMIRALTY "W" *class*.
Short mainmast Admiralty "V" *classes*.
Part Sketch VIMY, VELOX, VERSATILE, VORTIGERN, VANOC.

VANSITTART *group*.

VICEROY, VISCOUNT

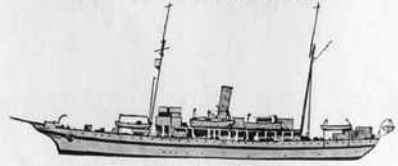
VEGA and other rearmed units.

CHALLENGER.

JASON, GLEANER (in wartime these are Minesweepers).
(SCOTT, FRANKLIN have foremast before bridge and no derrick post.)

FOLKESTONE, SCARBOROUGH.

FITZROY.
(*Also* KELLETT with shorter foremast.)



ENDEAVOUR.

FALMOUTH.

HASTINGS, SHOREHAM *classes*.

BRIDGEWATER.
(Should be shown with plain bow.)

FLEETWOOD.

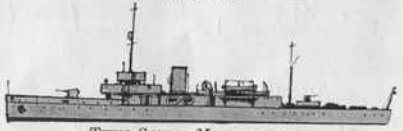
HALCYON *class*.

GRIMSBY *class*.

ENCHANTRESS.
(Gun before mainmast replaced by deckhouse.)

ABERDEEN.

ALRESFORD.



TWIN SCREW MINESWEEPERS.
(Improved "Hunt" *class*.)

SALTBURN.

EGRET *class*.

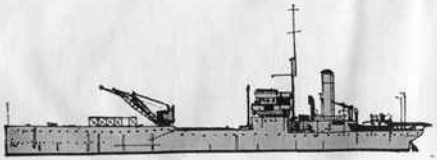
STORK.

P.C.74.

KINGFISHER *class*.
(Bridge now covered in.)

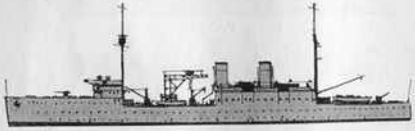
LUPIN, FOXGLOVE, ROSEMARY.
(Vary in details.)

ALBATROSS.



PEGASUS.

WOOLWICH.

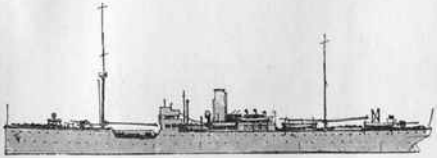


RESOURCE.

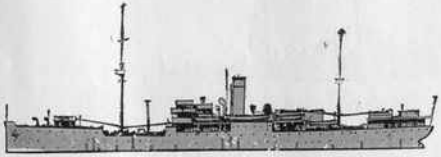
MEDWAY.

MAIDSTONE. FORTH.

CYCLOPS.



GREENWICH.



LUCIA.

TITANIA.

ALECTO.

MERSEY *type*.
(Trawlers.)

DEE *type*.
(Trawlers.)

"TREE" *type*.
(Trawlers.)
(Vary in details.)

"GEM" *type*.
(Trawlers.)
(Vary in details.)

BASSET

GUARDIAN.

PROTECTOR.

REDSTART, RINGDOVE.
(LINNET has cowl lower.)

VULCAN.

BARRICADE *class*.

BAYONET *class*.

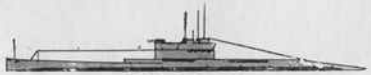
TORPEDO BOAT 102.

TORPEDO BOATS 22, 24, 25.

TORPEDO BOATS 1—12, 14—19.

MMS 1, 2.

"H" *class.*



L 23, L 26, L 27.

SEALION *class.*
(Shape of C.T. varies slightly.)

STURGEON (After part as Part Sketch.)

OBERON.

OLYMPUS *class.*
OTWAY. (With net cutter.)

PARTHIAN *class.*

REGENT *class.*

SEVERN *class.*

RORQUAL *group.*
(PORPOISE as Part Sketch.)

TRITON *class.*

URSULA *class.*

BRITISH—Pendant Numbers.

Destroyers.

D Flag Superior.

Pendants.	Ship.
D 00	Stuart, R.A.N.
D 01	Montrose.
D 02	Inglefield.
D 03	Icarus.
D 09	Imperial
D 10	Intrepid.
D 11	Impulsive.
D 18	Assiniboine, R.C.N.
D 19	Malcolm.
D 22	Waterhen, R.A.N.
D 25	Warwick.
D 26	Watchman.
D 27	Walker.
D 28	Vanity.
D 29	Vanessa.
D 31	Voyager, R.A.N.
D 32	Versatile.
D 33	Vimy.
D 34	Velox.
D 36	Vivacious.
D 37	Vortigern.
D 38	Ambuscade.
D 39	Amazon.
D 41	Walpole.
D 46	Winchelsea.
D 47	Westcott.
D 48	Vidette.
D 54	Vanquisher.
D 55	Vesper.
D 56	Wolfhound.
D 59	Skeena, R.C.N
D 60	Campbell.
D 61	Ilex.
D 62	Wild Swan.
D 63	Verity.
D 64	Vansittart.
D 65	Codrington.
D 66	Wivern.
D 67	Wishart.
D 68	Vampire, R.A.N.
D 69	Vendetta, R.A.N.
D 70	Mackay.
D 71	Volunteer.
D 72	Veteran.
D 74	Wanderer.
D 75	Venomous.
D 76	Witherington.
D 77	Whitshed.
D 78	Wolverine.
D 79	Saguenay, R.C.N.
D 83	Broke.
D 84	Keppel.
D 85	Shikari.
D 86	Thracian.
D 87	Isis.
D 89	Witch.
D 90	Douglas.
D 91	Viceroy.
D 92	Viscount.
D 93	Verdun.
D 94	Whitehall.
D 96	Worcester.
D 99	Duncan.

F Flag Superior.

Pendants.	Ship.
F 00	Jervis.
F 01	Kelly.
F 03	Cossack.
F 12	Kashmir.
F 15	Loyal.
F 18	Zulu.
F 21	Punjabi.
F 22	Jackal.
F 24	Maori.
F 26	Matabele.
F 28	Kandahar.
F 31	Mohawk.
F 32	Lookout.
F 33	Somali.
F 34	Jaguar.
F 36	Nubian.
F 37	Kelvin.
F 40	Lively.
F 43	Tartar.
F 45	Khartoum.
F 46	Juno.
F 50	Kimberley.
F 51	Ashanti.
F 53	Janus.
F 55	Lightning.
F 59	Mashona.
F 61	Javelin.
F 63	Larne.
F 64	Kingston.
F 67	Bedouin.
F 72	Jersey.
F 74	Legion.
F 75	Eskimo.
F 82	Sikh.
F 85	Jupiter.
F 87	Lance.
F 91	Kipling.
F 99	Laforey.

H Flag Superior.

Pendants.	Ship.
H 00	Restigouche, R.C.N.
H 01	Hotspur.
H 04	Tenedos.
H 05	Greyhound.
H 07	Defender.
H 08	Eclipse.
H 10	Encounter.
H 12	Achates.
H 14	Active.
H 17	Escapade.
H 18	Sabre.
H 21	Scimitar.
H 22	Diamond.
H 23	Echo.
H 24	Hasty.
H 26	Sardonyx.
H 27	Electra.
H 29	Thanet.
H 30	Beagle.

H Flag Superior.

Pendants.	Ships.
H 31	Griffin.
H 33	Vanoc.
H 34	Blyskawica, P.N.
H 36	Antelope.
H 37	Garland.
H 39	Skate.
H 40	Anthony.
H 42	Arrow.
H 43	Havock.
H 50	Stronghold.
H 51	Scout.
H 53	Dainty.
H 54	Saladin.
H 59	Gallant.
H 60	Ottawa, R.C.N.
H 61	Express.
H 62	Faulknor.
H 65	Boadicea.
H 67	Fearless.
H 68	Foresight.
H 69	Foxhound.
H 70	Fortune.
H 72	Burza, P.N.
H 74	Forester.
H 75	Decoy.
H 76	Fury.
H 77	Boreas.
H 78	Fame.
H 79	Firedrake.
H 83	St. Laurent, R.C.N
H 84	Brilliant.
H 91	Bulldog.
H 93	Hereward.
H 97	Hyperion.
H 99	Hero.

Escort Destroyers and Sloops.

L Flag Superior.

Pendants.	Ship.
L 00	Valorous.
L 01	Bridgewater.
L 02	Wolsey.
L 04	Wryneck.
L 06	Sheldrake.
L 09	Cornwallis, R.I.N.
L 10	Wrestler.
L 12	Sandwich.
L 14	Rosemary.
L 15	Fowey.
L 16	Grimsby.
L 18	Flamingo.
L 19	Lupin.
L 21	Pintail.
L 26	Foxglove.
L 27	Hastings.
L 29	Vimiera.
L 30	Kittiwake.
L 32	Shoreham.
L 33	Vivien.
L 34	Falmouth.
L 36	Leith.
L 39	Shearwater.
L 40	Westminster.
L 41	Vega.
L 42	Mallard.
L 43	Bideford.
L 44	Parramatta, R.A.N.
L 47	Fleetwood.
L 49	Woolston.
L 50	Rochester.
L 51	Milford.
L 52	Puffin.
L 53	Deptford.
L 55	Winchester.
L 56	Enchantress.
L 57	Black Swan.
L 59	Lowestoft.
L 61	Auckland.
L 62	Widgeon.
L 64	Wallace.
L 65	Wellington.
L 67	Indus, R.I.N.
L 70	Kingfisher.
L 72	Weston.
L 73	Warrego, R.A.N.
L 74	Swan, R.A.N.
L 75	Egret.
L 76	Londonderry.
L 77	Yarra, R.A.N.
L 79	Clive, R.I.N.
L 80	Hindustan, R.I.N.
L 81	Stork.
L 83	Lawrence, R.I.N.
L 86	Pelican.
L 89	Guillemot.
L 94	Windsor.
L 97	Aberdeen.

Minesweepers.

N Flag Superior.

Pendants.	Ship.
N 02	Hazard.
N 24	Hebe.
N 42	Halcyon.
N 63	Gossamer.
N 68	Sharpshooter.
N 71	Harrier.
N 73	Niger.
N 82	Hussar.
N 85	Seagull.
N 86	Salamander.
N 87	Speedwell.
N 93	Leda.
N 99	Jason.

Submarines.

Pendant Numbers.

Pendants.	Ship.
11	Thunderbolt.
12	Clyde.
14	Porpoise.
15	Triton.
18	Triumph.
21	Oberon
23	L 23.
26	L 26.
27	L 27.
28	H 28.
29	Proteus.
31	H 31.
32	H 32.
33	H 33.
34	H 34.
35	Olympus.
36	Perseus.
38	Taku.
39	Snapper.
41	Regent.
42	Pandora.
43	H 43.
44	H 44.
47	Seawolf.
50	H 50.
51	Otway.
52	Trident.
57	Severn.
59	Ursula.
62	Rover.
63	Tigris.
67	Osiris.
68	Truant.
72	Sealion.
73	Sturgeon.
74	Rorqual.
75	Parthian.
76	Tribune.
77	Tetrarch.
78	Talisman.
79	Torbay.
81	Sunfish.
83	Cachalot.
88	Regulus.
92	Otus.
94	Tuna.

(Lion Class—4 Ships)

LION, TEMERAIRE, and 2 others (names not released).

Displacement: *circa* 40,000 tons.

Dimensions: 781 × 105 × 30 feet.

No official information available about these ships, which it is reported will be armed with 9—16 inch guns, and have a speed similar to *King George V* class.

Est.	*Name.*	*Builder.*	*Machinery.*	*Ordered.*	*Laid down*	*To be Completed.*
1938	*Lion*	Vickers-Armstrongs (Tyne)	V.-A. (Barrow)	21/2/39	4/7/39	1943
	Temeraire	Cammell Laird	Cammell Laird		1/6/39	
1939	1 *ship*	Clydebank	Clydebank	16/8/39	'39	1944
	1 *ship*	Fairfield	Fairfield	/39		

(King George V. Class—5 Ships)

KING GEORGE V. (Feb. 21, 1939), **PRINCE OF WALES** (May 3, 1939),
DUKE OF YORK (ex-*Anson*), (Sept. 16, 1939), **JELLICOE,** (1940), **BEATTY** (Nov. 11, 1939).

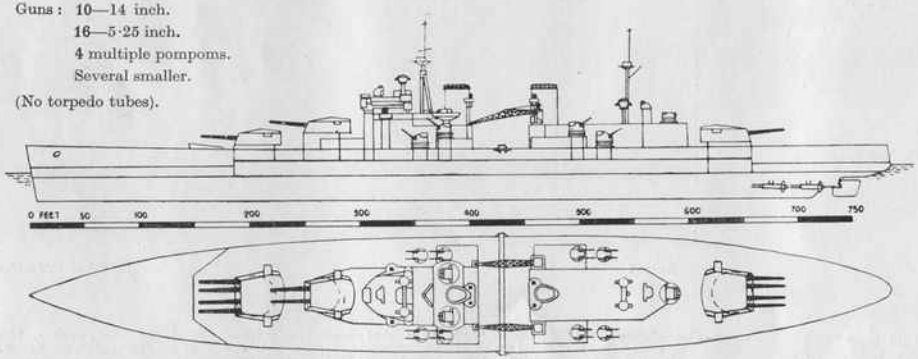
Displacement: 35,000 tons. Complement: 1,500.

Dimensions: 739⅜ × 103 × 27⅜ feet.

Aircraft: 4. Catapult: 1.

Guns: 10—14 inch.
16—5·25 inch.
4 multiple pompoms.
Several smaller.

(No torpedo tubes).



Armour:

Officially stated that design will include enhanced defence against air attack, including an improved distribution of deck and side armour, more elaborate subdivision, and an improved system of under-water protection.

Unofficial reports give weight of armour as over 14,000 tons, and water-line thickness as 16 inches.

Launch of Prince of Wales 1939, *courtesy Builders.*

Machinery: Parsons geared turbines. 4 shafts. S.H.P.: 152,000 = over 30 kts. Boilers: Admiralty 3-drum type. Oil fuel.

Gunnery Notes.—14 inch guns are a new model, with an effective range greater than the 15 inch mounted in earlier ships, as measured by the perforation of any given thickness of armour. Cost of fire control installation in each ship is £213,000.

Engineering Notes.—Improvements in boiler design have reduced boiler weights by about 15 per cent. as compared with *Nelson and Rodney.*

Est.	*Name*	*Builder*	*Machinery*	*Laid down*	*To be Compld.*
1936	*King George V*	Vickers-Armstrongs (Tyne)	V.-A., (Barrow)	Jan. 1, 1937	1940–41
	Prince of Wales	Cammell Laird	Cammell Laird	Jan 1, 1937	
1937	*Duke of York*	Clydebank	Clydebank	May 5, 1937	
	Jellicoe	Swan Hunter	Wallsend Co.	July 20, 1937	
	Beatty	Fairfield	Fairfield	June 1, 1937	

(Lion Class—4 Ships)

LION, TEMERAIRE

Builder.	Machinery.	Ordered.	Laid down	To be Completed.
rmstrongs (Tyne) Laird	V.-A. (Barrow) Cammell Laird	21/2/39	4/7/39 1/6/39	1943
	Clydebank Fairfield	16/8/39 /39	'39	1944

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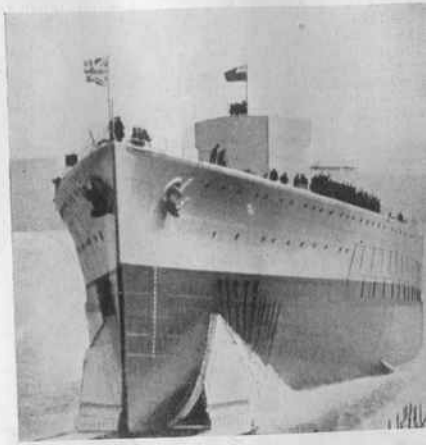

Launch of Prince of Wales 1939, *courtesy Builders*

-drum type. Oil fuel.

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1937	*Duke of York*	Clydebank	Clydebank	May 5, 1937	
	Jellicoe	Swan Hunter	Wallsend Co.	July 20, 1937	
	Beatty	Fairfield	Fairfield	June 1, 1937	

(NELSON CLASS.)

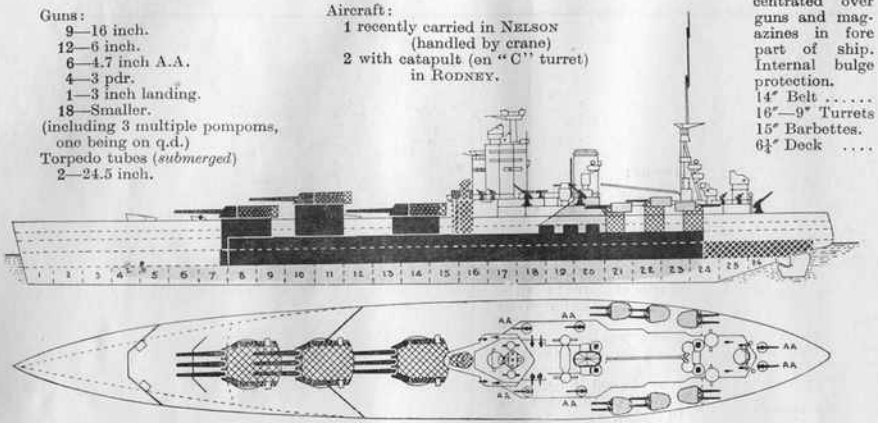
NELSON (September 3rd, 1925), **RODNEY** (December 17th, 1925).

Displacement, 33,950 tons (*Nelson*), 33,900 tons (*Rodney*), (*full load*, about 38,000 tons).
Length, (*p.p.*) 660 feet, (*w.l.*) 702 feet, (*o.a.*) 710 feet. Beam, 106 feet. *Mean* draught, 30 feet.
Complement, as flagship, 1361; as private ship, 1314.

Guns:
9—16 inch.
12—6 inch.
6—4.7 inch A.A.
4—3 pdr.
1—3 inch landing.
18—Smaller.
(including 3 multiple pompoms, one being on q.d.)
Torpedo tubes (*submerged*)
2—24.5 inch.

Aircraft:
1 recently carried in NELSON (handled by crane)
2 with catapult (on "C" turret) in RODNEY.

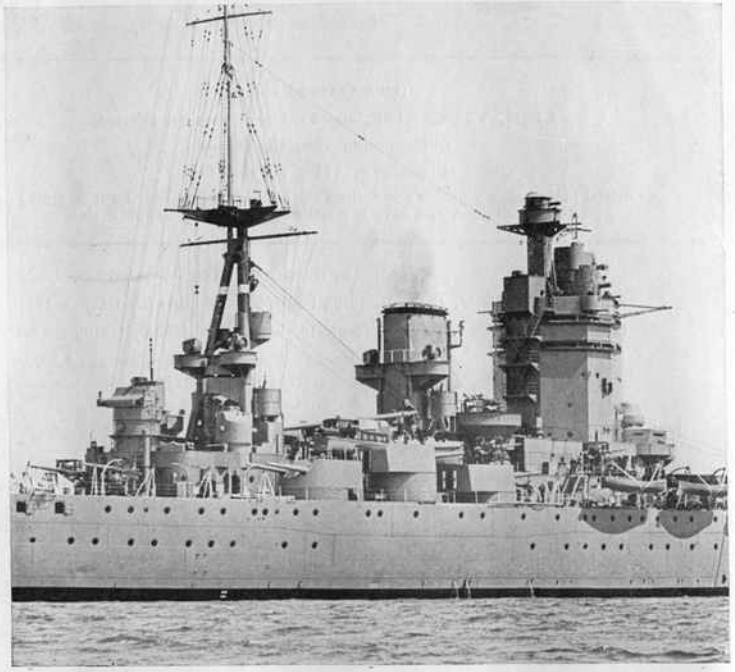
Armour:
Is largely concentrated over guns and magazines in fore part of ship. Internal bulge protection.
14″ Belt .....
16″—9″ Turrets
15″ Barbettes.
6¾″ Deck ....



Machinery: Brown-Curtis geared turbines. 2 shafts. Boilers: 8 Admiralty 3-drum type (with superheaters). Designed H.P. 45,000=23 kts. Oil fuel: 4,000 tons. Consumption: full speed, 16 tons per hour; cruising speed, 2·7 tons per hour.

General Notes.—Both laid down under 1922-23 Estimates, being the last battleships designed by Sir E. Tennyson D'Eyncourt while D.N.C. They are reduced editions of the 48,000 ton battle-cruisers ordered in 1921 and cancelled under the Washington Treaty, in which 16 inch guns were to have been mounted in triple turrets. Designed to Treaty limits which could not be exceeded, and yet must be approached as closely as possible, weight estimation and economy was a far more important factor than in previous designs. The grouping of the main armament forward allows for a minimum length of armoured citadel with maximum protection to hull and magazines, and is considered fully to compensate for the loss of fire astern. The design is therefore peculiar, in that it is governed more by constructional than tactical principles. By placing the boiler room abaft the engine rooms smoke interference with the control positions is obviated. The bridge structure carries 16 inch, 6 inch and 4·7 inch directors, admiral's bridge, torpedo controls, signalling and navigating bridges, sea cabins and offices. Part of the material used in these two ships was originally ordered for the battle cruisers *Anson* and *Howe* (sister ships to *Hood*), construction of which was abandoned after the Armistice.

High freeboard of these ships proved its value in combined Fleet Exercise of March, 1934, when an Atlantic gale made little difference to their efficiency as compared with *Royal Sovereign* and *Queen Elizabeth* classes.



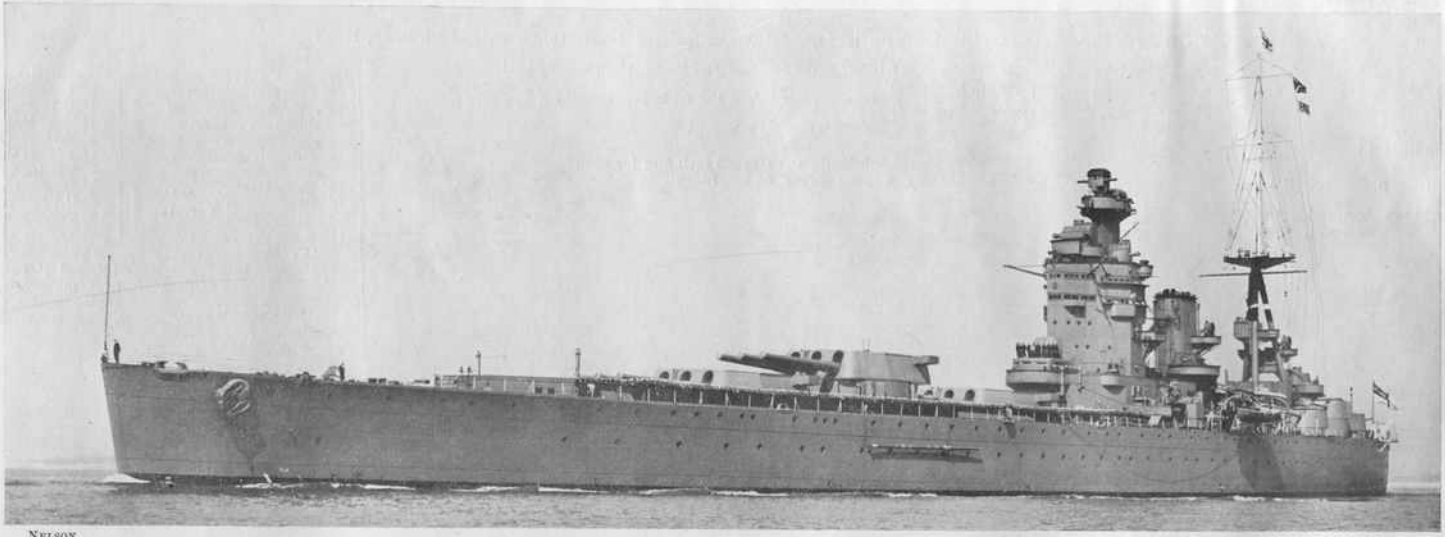
NELSON. 1934 *Photo, R. Perkins.*

Cost.—*Nelson* £7,504,055; *Rodney* £7,617,799. Cost of guns and turret armour approx. £3,000,000; engines, £490,000. Steering gear is of novel design and rudder can be swung over in 30 secs. at full speed. Accommodation is on generous lines and all living spaces have natural lighting and ventilation.

Gunnery Notes.—These were the first British warships to mount 16-inch guns. Arcs of fire of the 3 turrets reported to be 298, 330 and 250 degrees respectively. Elevation is 40° and range 35,000 yards. Cost of firing a triple salvo is £700. 6-inch guns have 60° elevation and can be used as AA. They are the first power worked 6-inch in the Service. Special measures have been taken to protect personnel and instruments from the blast of the after 16-inch guns when fired abaft the beam at full elevation.

Armour Notes.—Citadel belt extends from first 16 inch to aftermost 6 inch turret, with thick armour deck over same area with specially designed hatches. Underwater protection is most efficient and the usual external bulges have been replaced by an alternative system of hull construction developed from a long series of experiments.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*
Nelson	Armstrong	Wallsend Co.	Dec. 28,	June, 1927	46,000=23·5	Admiralty
Rodney	Cammell Laird	Cammell Laird	1922	Aug., 1927	=23·8	3-drum



NELSON. 1938 *Wright & Logan.*

NELSON (Showing crane). 1935, *R. Perkins*

(*For particulars see preceding page*)

Note.—From the air these 2 ships can be distinguished by the letters NE painted on the roof of "C" turret of *Nelson*, and catapult on that of *Rodney*.

RODNEY. 1939, *P. A. Vicary, Cromer.*

Guns :
8—15 inch, 42 cal.
12—5·5 inch, 50 cal.
8—4 inch AA.
4—3 pdr.
5 M.G.
10 Lewis.
(besides multi-M.G.)
Torpedo tubes (21 inch)
4 *above water* in pairs.
Aircraft:
1 was to have been added to equipment, with catapult, when refitted.

HOOD* (J. Brown & Co., Clydebank. Begun 1st Sept., 1916, Launched 22nd August, 1918, completed 5th March, 1920.)

Displacement, 42,100 tons (46,300 tons *full load*). Complement, 1341.

Length { *p.p.* 810 ft. / *o.a.* 860 ft. 7 in. } Beam *outside bulges* 105 ft. 2½ in. Draught { *mean* 28½ ft. / *max.* 31½ ft.

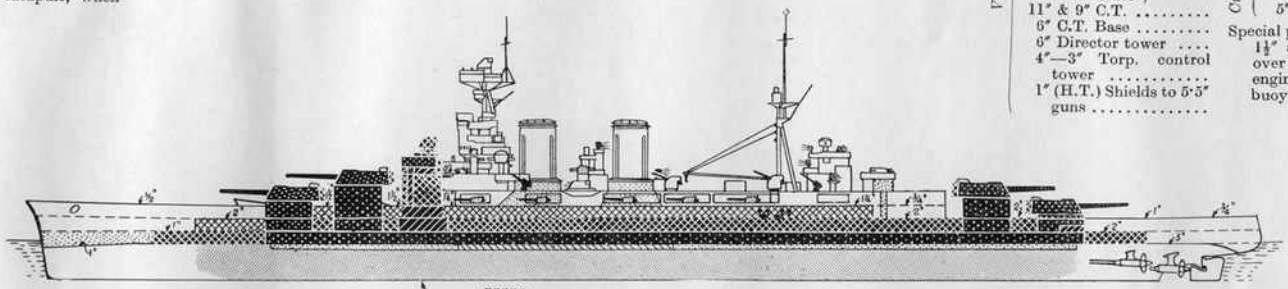
*Fitted as Flagship.

Note to plan.—Substitute an extra 5.5 inch gun for each of two A.A. guns abreast of fore-funnel.

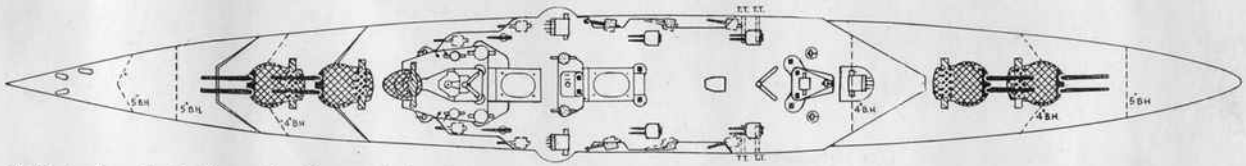
Armour (K.C.):
Vertical
3″ Side (submerged) ..
12″, 7″, 5″ Side (amidships) .....
6″—5″ Side (forward)..
6″ Side (aft).....
5″—4″ Bulkh'ds (f. & a.)
12″ Barbettes .....
15″ Face / 12″—11″ Sides } Turrets
11″ & 9″ C.T. .....
6″ C.T. Base .....
6″ Director tower ....
4″—3″ Torp. control tower .....
1″ (H.T.) Shields to 5·5″ guns .....

Armour (H.T.):
Decks.
2″ Forecastle ....
1″ U.D. amidships
1½″—3″ Main deck
3″ M.D. over magazi
1½″—1″ L.D. forwa
3″—1″ L.D. aft ..
Crowns.
3″ Director tower
5″ C.T. .....
3″ Torpedo control
5″ Turrets .....

Special protection (H.T.): 1½″ and ¾″ Torp. pro. over magazines, boile engine rooms, bulge buoyancy spaces.



Combined Thickness of Conning Tower and Side Armour shown



Machinery (by Builders): Brown-Curtis (all-geared) turbines. 4 shafts. Boilers: 24 Yarrow (small tube). Designed S.H.P. 144,000 = 31 kts. Oil fuel: 1200 tons *normal*, 4,000 tons *maximum*.

Gunnery Notes.—Barbette heights over l.w.l.: A, 32 ft.; B, 42 ft.; X, 31½ ft.; Y, 21½ ft. All turrets bear 150° on each beam. Designed to mount 16—5·5 inch, but the four after guns were removed before completion. Elevation of 15 inch guns, 30°. 8—36 inch controlled, and 4—24 inch signalling S.L. Guns, mountings, barbettes and ammunition = 5,300 tons.

Armour Notes.—Vertical side armour is backed by strong 2″—1″ H.T. plating, not included in thicknesses given. Area of 12″ armour at w.l., 562 ft. long by 9½ ft. deep. Gun houses, new type with flat crowns, small square sighting ports cut low in face for laying over open sights. On roofs, armoured cases slightly wider than R.F. to allow R.F. to be traversed for fine adjustments. Barbettes, 6″—5″ as they descend through decks. C.T. is an enormous, elaborate, most expensive and ponderous structure: in upper stages, it consists of two shells, 12″ outer, 9″ inner, with narrow passage between. The slope inboard of hull side detracts from effects of plunging fire by virtual increase of armour thickness. A perpendicular, dropped from topsides, just meets outer edges of bulges, which are of the improved "D'Eyncourt-Hopkinson" type. Total weight of armour and protection, 13,800 tons (equal to 33¼ per cent. of load displacement).

Engineering Notes.—During world cruise, economical speed worked out at 288 miles in 24 hours on 180 tons of oil, i.e., 7⅓ tons an hour, ·625 ton per mile run.

Trials (unofficial figures).—At 42,200 tons, 151,000 S.H.P. = 32·07 kts. (run in bad weather, wind force 6 Beaufort scale) on Arran mile. At 44,600 tons, 31·89 kts. *mean* attained. On ⅔ power, 25 kts. easily secured. Total weight of machinery (with water in boilers to working level) = 5,350 tons.

Notes on Original Design.—The original 1915 Design embodied same length and beam, but draughts were 25½ feet *normal* = 36,300 tons, and 29 feet deep. Speed: 32 kts. Belt 8″, barbettes 9″, much thinner deck armour, and only 2—21 inch *submerged* T. T. Four ships ordered to this design April, 1916. In the design produced after Jutland (not approved till 1917), 5,000 tons extra protection was worked in. By use of small-tube boilers, 24,000 S.H.P gained on *same* machinery weights as for *Renown* class.

General Notes.—Begun under Emergency War Programme. Originally, there were four ships in this class, *Anson*, *Hood*, *Howe*, *Rodney*. They were begun in the autumn of 1916, to meet the German Battle Cruisers, *Graf Spee*, *Mackensen*, *Ersatz Freya* and *Ersatz "A."* which were laid down in 1916. Contractors were: *Anson* (Armstrong), *Howe* (Cammell Laird), *Rodney* (Fairfield), *Hood* (Brown). The enemy having ceased work on all his large ships, in 1917, *Anson*, *Howe* and *Rodney* were stopped in March, 1917, and dismantled to clear slips after the Armistice, but not before £860,000 had been expended on them. These ships were redesigned to meet the lessons of Jutland. In *Hood*, the outstanding feature is the huge areas covered by heavy armour, strong framing, &c.—in fact, the general scheme of protection is most comprehensive. Cost, *about* £6,025,000 = £145 per ton. General refit 1929–30. Carried catapult and aircraft on quarterdeck in 1931.

42 cal.
50 cal.
A.

lti-M.G.)
(21 inch)
r in pairs.

have been added to
with catapult, when

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6″ Side (aft).....	
5″—4″ Bulkh'ds (f. & a.)	
12″ Barbettes	
15″ Face / 12″—11″ Sides	Turrets
11″ & 9″ C.T.	
6″ C.T. Base	
6″ Director tower	
4″—3″ Torp. control tower	
1″ (H.T.) Shields to 5·5″ guns	

Armour (H.T.):

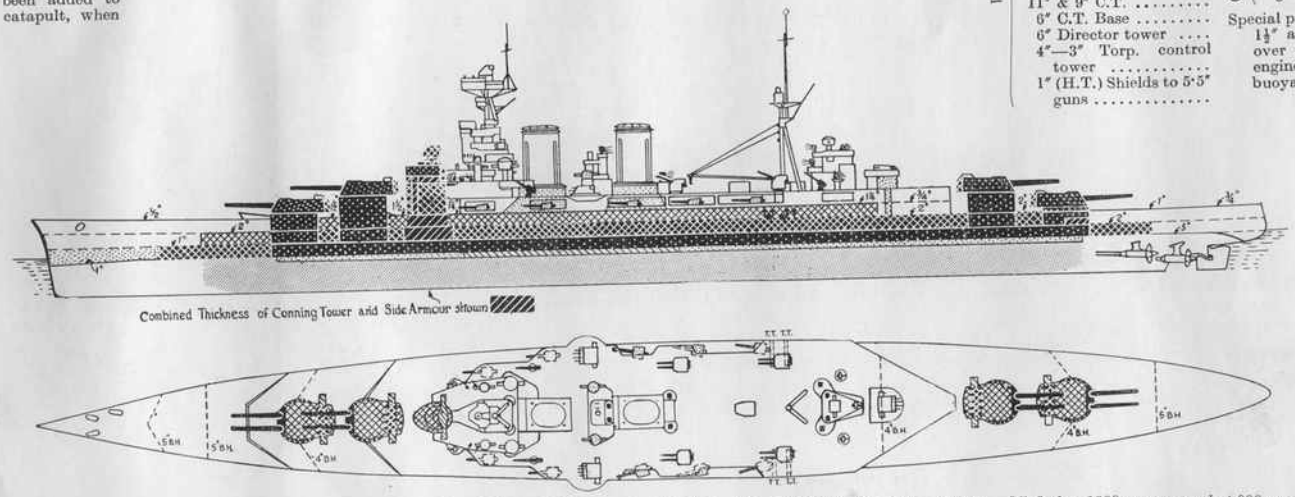
Decks.

2″ Forecastle	
1″ U.D. amidships	
1½″—3″ Main deck ...	
3″ M.D. over magazines	
1½″—1″ L.D. forward	
3″—1″ L.D. aft	

Crowns.

3″ Director tower	
5″ C.T.	
3″ Torpedo control T.	
5″ Turrets	

Special protection (H.T.):
1½″ and ¾″ Torp. pro. b'lk'd over magazines, boiler and engine rooms, bulges and buoyancy spaces.



chinery (by Builders): Brown-Curtis (all-geared) turbines. 4 shafts. Boilers: 24 Yarrow (small tube). Designed S.H.P. 144,000 = 31 kts. Oil fuel: 1200 tons *normal*, 4,000 tons *maximum*.

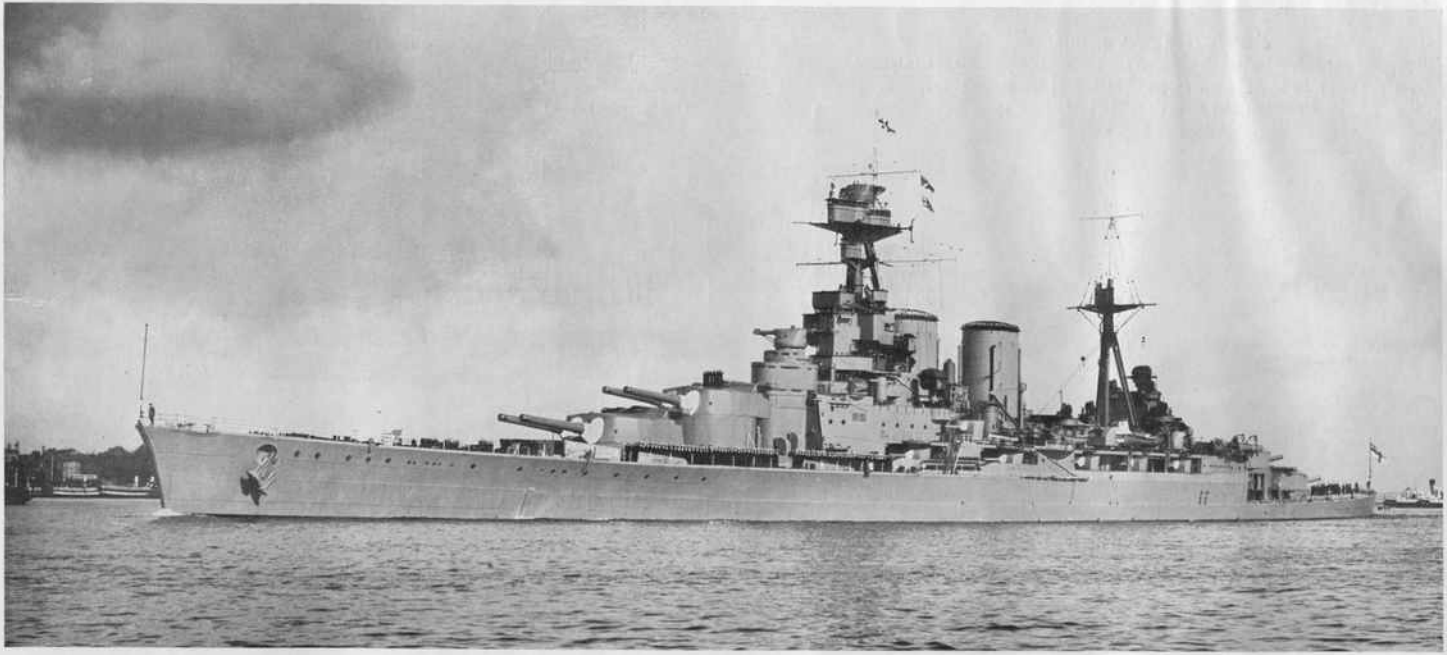
Notes.—Barbette heights over l.w.l.: A, 32 ft.; B, 42 ft.; X, 31½ ft.; Y, 21½ ft. All turrets bear 150° on each . Designed to mount 16—5·5 inch, but the four after guns were removed before completion. Elevation of h guns, 30°. 8—36 inch controlled, and 4—24 inch signalling S.L. Guns, mountings, barbettes and ammunition 00 tons.

otes.—Vertical side armour is backed by strong 2″—1″ H.T. plating, not included in thicknesses given. Area ″ armour at w.l., 562 ft. long by 9½ ft. deep. Gun houses, new type with flat crowns, small square sighting cut low in face for laying over open sights. On roofs, armoured cases slightly wider than R.F. to allow R.F. traversed for fine adjustments. Barbettes, 6″—5″ as they descend through decks. C.T. is an enormous, rate, most expensive and ponderous structure: in upper stages, it consists of two shells, 12″ outer, 9″ inner, narrow passage between. The slope inboard of hull side detracts from effects of plunging fire by virtual increase nour thickness. A perpendicular, dropped from topsides, just meets outer edges of bulges, which are of the oved "D'Eyncourt-Hopkinson" type. Total weight of armour and protection, 13,800 tons (equal to 33½ per of load displacement).

ng Notes.—During world cruise, economical speed worked out at 288 miles in 24 hours on 180 tons of oil, i.e., ns an hour, ·625 ton per mile run.
official figures).—At 42,200 tons, 151,000 S.H.P. = 32·07 kts. (run in bad weather, wind force 6 Beaufort scale)
rran mile. At 44,600 tons, 31·89 kts. *mean* attained. On ¾ power, 25 kts. easily secured. Total weight achinery (with water in boilers to working level) = 5,350 tons.

Notes on Original Design.—The original 1915 Design embodied same length and beam, but draughts were 25½ feet *normal* = 36,300 tons, and 29 feet deep. Speed: 32 kts. Belt 8″, barbettes 9″, much thinner deck armour, and only 2—21 inch *submerged* T. T. Four ships ordered to this design April, 1916. In the design produced after Jutland (not approved till 1917), 5,000 tons extra protection was worked in. By use of small-tube boilers, 24,000 S.H.P gained on *same* machinery weights as for *Renown* class.

General Notes.—Begun under Emergency War Programme. Originally, there were four ships in this class, *Anson*, *Hood*, *Howe*, *Rodney*. They were begun in the autumn of 1916, to meet the German Battle Cruisers, *Graf Spee*, *Mackensen*, *Ersatz Freya* and *Ersatz "A,"* which were laid down in 1916. Contractors were: *Anson* (Armstrong), *Howe* (Cammell Laird), *Rodney* (Fairfield), *Hood* (Brown). The enemy having ceased work on all his large ships, in 1917, *Anson*, *Howe* and *Rodney* were stopped in March, 1917, and dismantled to clear slips after the Armistice, but not before £860,000 had been expended on them. These ships were redesigned to meet the lessons of Jutland. In *Hood*, the outstanding feature is the huge areas covered by heavy armour, strong framing, &c.—in fact, the general scheme of protection is most comprehensive. Cost, *about* £6,025,000 = £145 per ton. General refit 1929–30. Carried catapult and aircraft on quarterdeck in 1931.



HOOD (For particulars, see preceding page). 1939, *Wright & Logan.*

HOOD. 1939, *Wright & Logan.*

HOOD. 1939, *Wright & Logan.*

(RENOWN CLASS—1st ship)

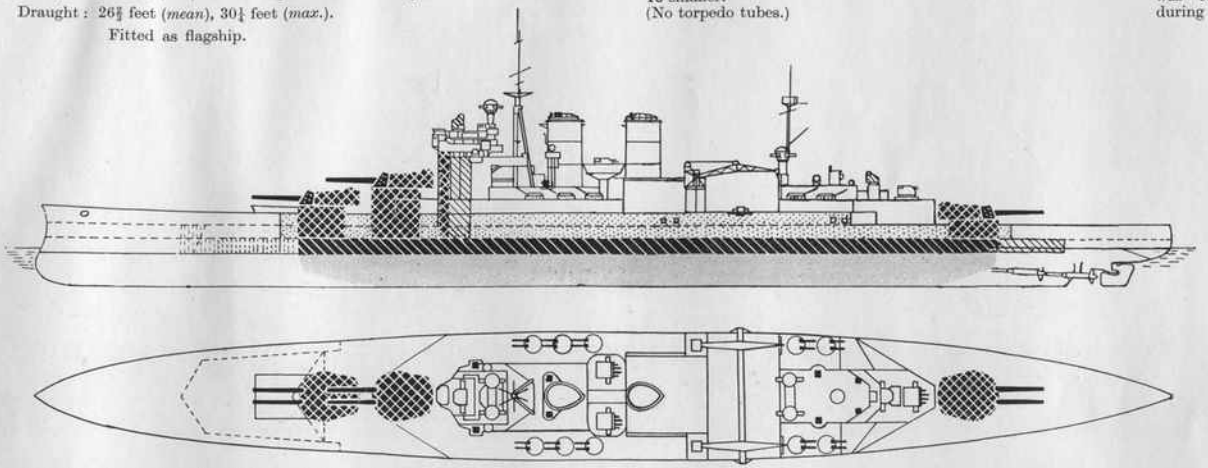
RENOWN (March 4, 1916).

Displacement : 32,000 tons (37,400 tons *full load*). Complement : 1,181/1,205.
Length : (*pp.*) 750 feet ; (*w.l.*), 787¾ feet ; (*o.a.*) 794 feet 1½ in. Beam : 102¾ feet.
Draught : 26¾ feet (*mean*), 30¼ feet (*max.*).
Fitted as flagship.

Guns :
6—15 inch, 42 cal.
20—4·5 inch (dual purpose)
18 smaller.
(No torpedo tubes.)

Aircraft :
4, with catapult.

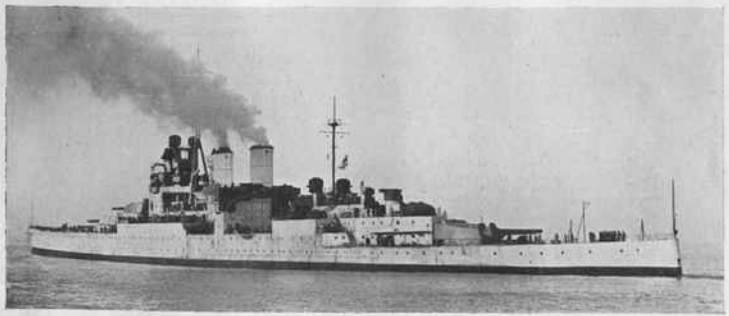
Armour :
Originally as *Repulse*, on a later page ; but protection was considerably increased during 1936–39 reconstruction.



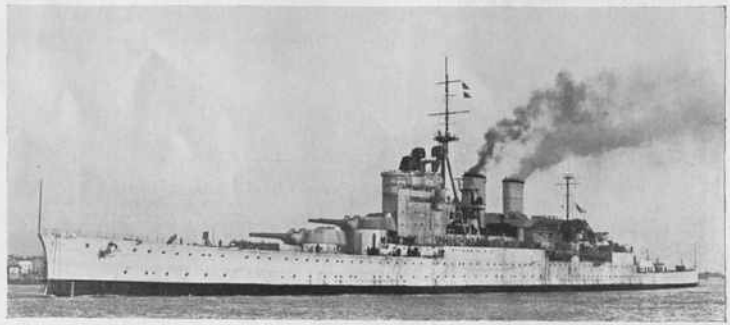
Machinery : Parsons geared turbines. 4 shafts. Boilers : 8 Admiralty 3-drum type (300 lb. working pressure). S.H.P. : 120,000 = 29 kts. Oil fuel : 1,000 tons *normal*, 4,289 tons *max.* Radius of action, *about* 3,650 miles.

General Notes.—This ship and *Repulse* were provided for under 1914 Navy Estimates, as battleships of *Royal Sovereign* class. After Falkland Islands battle they were re-designed as battle cruisers. Cost of *Renown*, £3,117,204. Refits : 1919–20, £100,738 ; 1921–22, £175,518 ; 1936–39 (complete reconstruction), £3,088,008.

Name.	*Builder.*	*Machinery.*	*Begun.*	*Completed.*	*First Trials.*
Renown	Fairfield	Fairfield	Jan. 25, 1915 (to B.C. design)	Sept., 1916	126,300 = 32·68

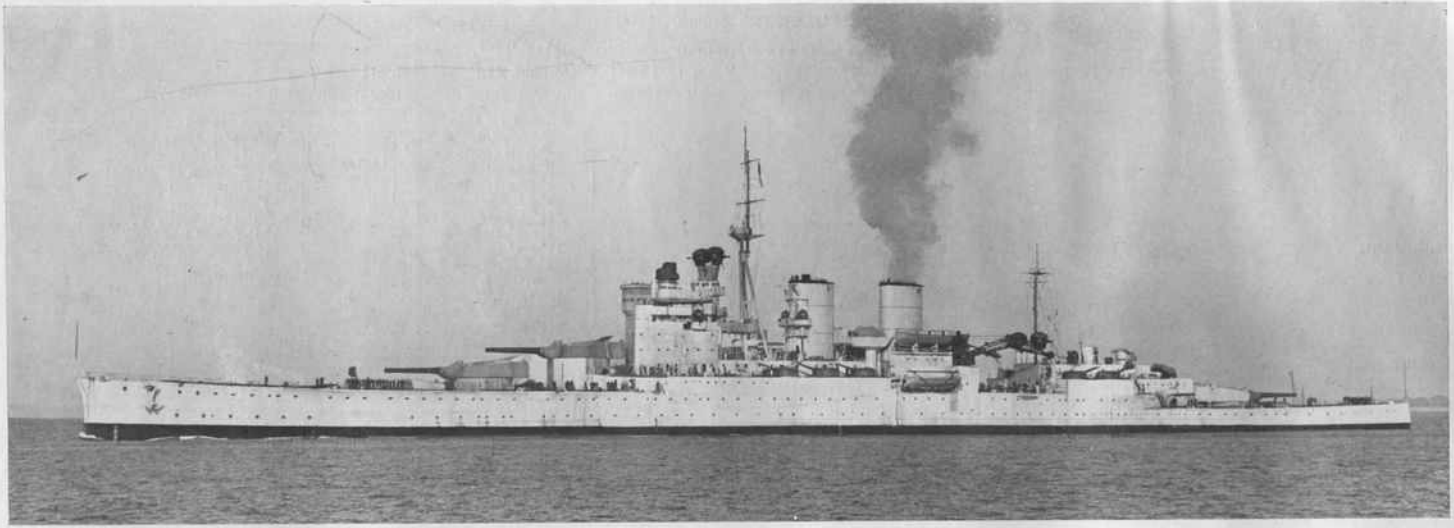


RENOWN. 1939 *Wright & Logan,*



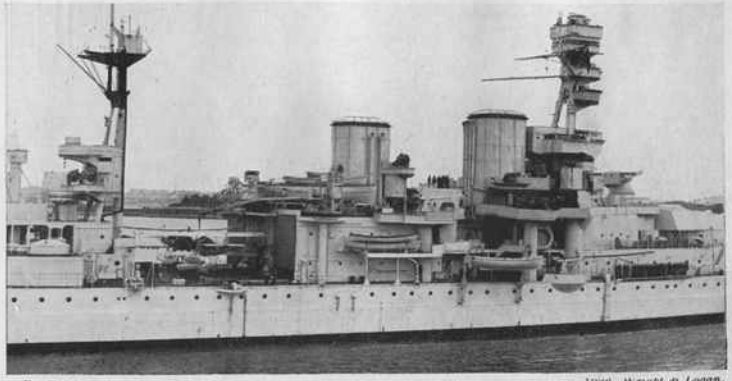
RENOWN. 1939, *Wright & Logan.*

(For particulars see preceding and following pages.)



RENOWN. 1939, *Wright & Logan.*

REPULSE. 1936, *Wright & Logan.*



REPULSE. 1936 *Wright & Logan.*

(RENOWN CLASS—2nd ship).

REPULSE (8th January, 1916).

Displacement, 32,000 tons (36,800 *full load*). Complement, 1181/1205.

Length (*p.p.*) 750 feet. (*w.l.*) 787¾ feet. (*o.a.*) 794 feet 2½ in. Beam 102¾ feet† Draught, 27 feet (*mean*), 31¾ feet (*max.*)

Fitted as flagship. †Outside bulges.

Guns :
- 6—15 inch, 42 cal.
- 12—4 inch, 40 cal.
- 8—4 inch AA.
- 4—3 pdr.
- 1—12 pdr. Field
- 5 M.G.
- 10 Lewis (besides multi-M.G.)

Torpedo tubes (21 inch) :*
- 8 *above water* in pairs

*See Torpedo Notes.

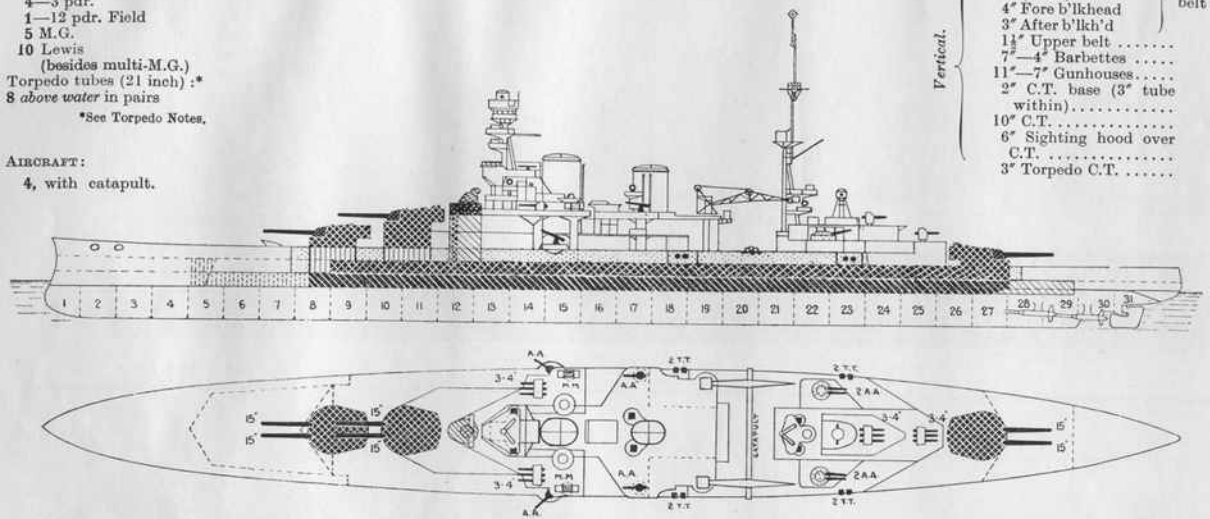
AIRCRAFT:
- 4, with catapult.

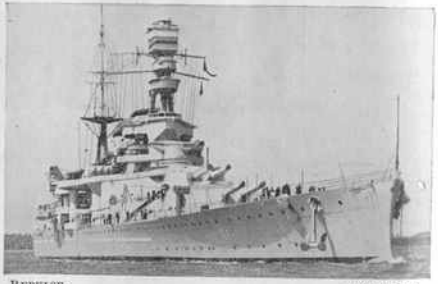
(See Armour Notes.)

Armour (K.C.) :
- *Vertical.* Lower belt: 9″—6″ Side (amidships); 6″—4″ Side (within bow); 3″ (stern)
- 4″ Fore b'lkhead
- 3″ After b'lkh'd
- 1½″ Upper belt .....
- 7″—4″ Barbettes .....
- 11″—7″ Gunhouses.....
- 2″ C.T. base (3″ tube within).....
- 10″ C.T. .....
- 6″ Sighting hood over C.T. .....
- 3″ Torpedo C.T. .....

Armour (H.T.) :
- *Decks* Lower: 1½″—1″ Fo'xle.....; 1⅛″—1½″ Upper .....; 3″—¾″ Main (2″ slopes); 2½″ Bow; 3½″—3″ Stern
- *Crowns* —″ Barbettes .....
- 3″ C.T. and hood .....
- 1½″ Torpedo C.T. .....

Special protection :
- Modified bulges.....





REPULSE. 1936, *Cribb.*

Machinery : Brown-Curtis turbines. 4 shafts. Boilers : 42 Babcock & Wilcox. Designed S.H.P. : 112,000. In service, present best speed *about* 29 kts. Oil fuel : 1,000 tons *normal*, 4,423 tons *maximum*. Radius of action, *about* 3,650 miles. Tactical diameter : 4½ times length (about 1,150 yards).

Gunnery Notes.—15-inch have range only limited by maximum visibility and director tower is under control tower on foremast. 4 inch triples have 2 director towers, and all guns can be worked from either tower or half the 4-inch from one tower. If towers are destroyed, 4-inch can work independently. 4-inch triples are clumsy and not liked. They are not mounted in one sleeve ; have separate breech mechanism ; gun crew of 23 to each triple.

Torpedo Notes.—*Repulse*, on 1919 re-fit, had 8 *above water* tubes in 4 twin mountings fitted on main deck above sections 18 and 23.

Armour Notes.—Armouring adapted from *Invincible* and *Indefatigable* classes. On re-fit 1919-20, *Repulse* re-armoured on w.l. with 9″ K.C. and 6″ K.C. between main and upper decks, extending over sections 8-27 on plans. Belt, *about* 9 ft. deep.

Name	*Builder*	*Machinery*	*Begun**	*Completed*	*Trials : H.P.*	*kts.*
Repulse	Clydebank	Clydebank	Jan.25,'15	Aug.,1916	119,025	=31·7†

*To Battle Cruiser design. †30 kts. on Arran mile after being re-armoured.

General Notes.—Cost of *Repulse*, £2,829,087 (not inclusive of all charges). She was originally to have been built by Palmers, but contract was reassigned. Refits : 1918–22, £860,684 ; 1932–36, £1,377,748. (See also notes under *Renown*.)

(Queen Elizabeth Class—1st 3 Ships.)

QUEEN ELIZABETH (16th Oct., 1913), WARSPITE (26th Nov., 1913), VALIANT (4th Nov., 1914).

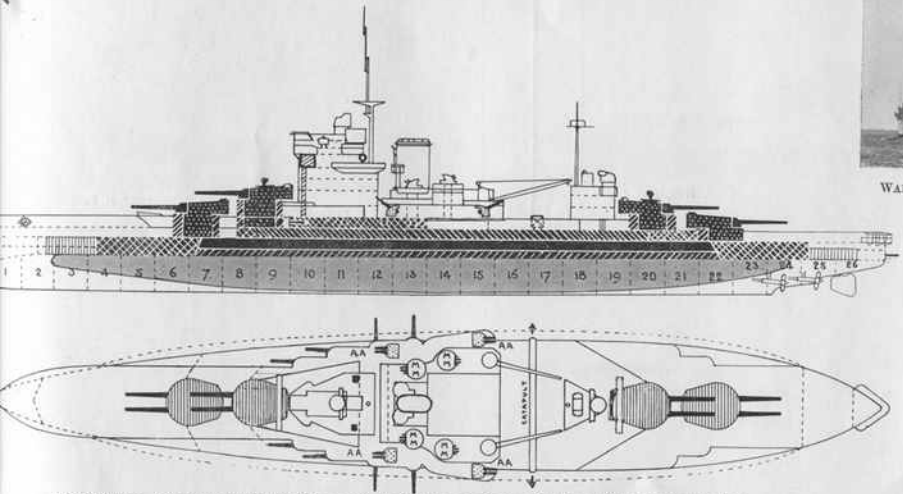
Displacement, 30,600 tons (*about* 35,000 tons *full load*). Complement, 1124-1184. All fitted as flagships.

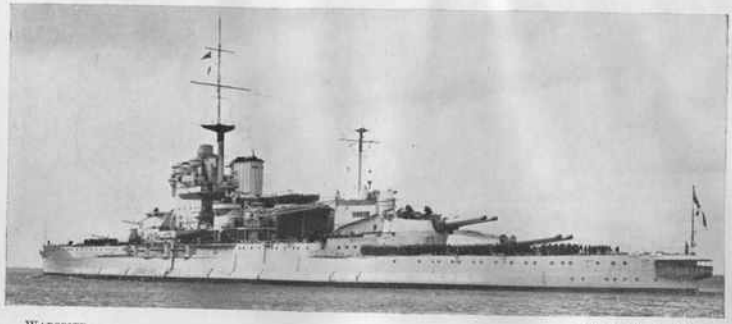
Length (*p.p.*), 600 feet; (*o.a.*) { 643⅔ ft., except *Valiant*, 639¾ ft. } (*w.l.*) 634½ feet. Beam, 104 feet. { *Mean* draught, 30⅔ feet; *Max.* „ 33½ „

Guns: (*Warspite*)
8—15 inch, 42 cal.
8—6 inch, 50 cal.
8—4 inch AA.
4—3 pdr.
5 M.G.
10 Lewis.
(besides multi-M.G.)

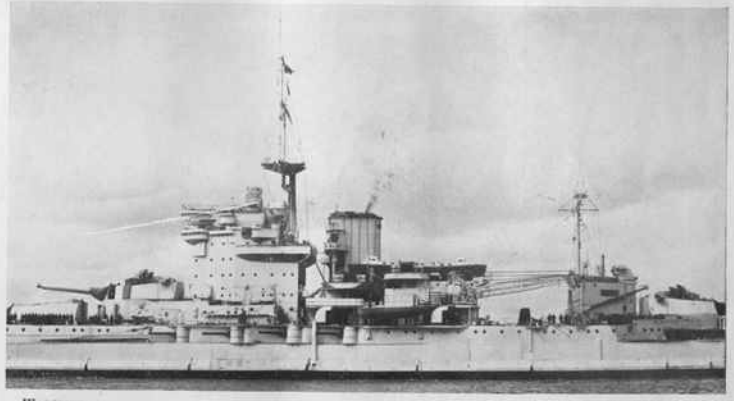
Aircraft:
4, with catapult.
(Photos show positions.)

Armour:
Originally as for *Barham* (vide a later page) but has been modified extensively as a result of reconstruction. All are fitted with bulges.





WARSPITE. 1937, *Wright & Logan.*



WARSPITE. 1937, *Wright & Logan.*

Machinery: Parsons geared turbine, but *Valiant* had Brown-Curtis before reconstruction. Geared cruising turbines in all ships. Boilers: Admiralty 3-drum type. Designed H.P.: 80,000 as reconstructed = 24 kts. Oil fuel: 650 tons *normal*, 3,400 tons *max.* Radius of action: *about* 4,400 miles.

General Notes.—First four begun under 1912 Estimates. *Malaya*, extra ship, gift of Federated Malay States. Cost, nearly £3,000,000 per ship. (*Q.E.*, £3,014,103; *Malaya*, £2,945,709; *Warspite*, £2,524,148.) *Q.E.*, *Barham* and *Warspite* have stern walks. Re-construction of this class, between 1925 and 1933, involved an expenditure of about £1,000,000 per ship; it included the remodelling of control top and bridgework and the trunking of the fore-funnel into the second. Two Torpedo tubes were removed. In 1934 *Warspite* and *Malaya* were taken in hand for further re-construction of an extensive character involving the provision of new turbines, additional protection, increased accommodation for aircraft and augmented AA. armament. In the case of the *Malaya*, the modernisation included about 60 per cent of ship's structure, but in the *Warspite* it was much more extensive. Cost of alterations, £2,362,000 (*Warspite*), £976,963 (*Malaya*). Both completed refits in 1937, since which date *Valiant* and *Queen Elizabeth* have undergone similar renovation to *Warspite*. *Valiant* was re-engined by Fairfield, *Q. E.* by Parsons.

Gunnery Notes.—15 inch guns and mountings designed for 20° elevation (increased to 30° when reconstructed). In *Warspite*, after main deck battery is now built in flush with ship's side, and four of original 12 guns have been removed.

Engineering Notes.—These ships steam splendidly, and can maintain a high average speed for long periods.

Appearance Notes.—As rebuilt, above 3 ships differ completely from former appearance, as will be seen by comparison of *Warspite* with *Barham*.

Name.	*Builder.*	*Machinery.*	*Laid down.*	*Completed.*	*Trials.*	*Boilers.*
Queen Elizabeth	Portsmouth	Wallsend	Oct. '12	Jan., '15	75,130 =	Admiralty Type
Warspite	Devonport	Hawthorn	Oct. '12	Mar., '15	77,510 =	
Valiant	Fairfield	Fairfield	Jan. '13	Feb., '16	71,112 =	
Barham	Clydebank	Clydebank	Feb. '13	Oct. '15	76,575 =	24 Yarrow
Malaya	Elswick	Wallsend	Oct. '13	Feb. '16	76,074 =	24 Babcock

(Queen Elizabeth Class—1st 3 Ships.)

QUEEN ELIZABETH (16th Oct., 1913), WARSPITE (26th Nov., 1913), VALIANT (4th Nov., 1914).

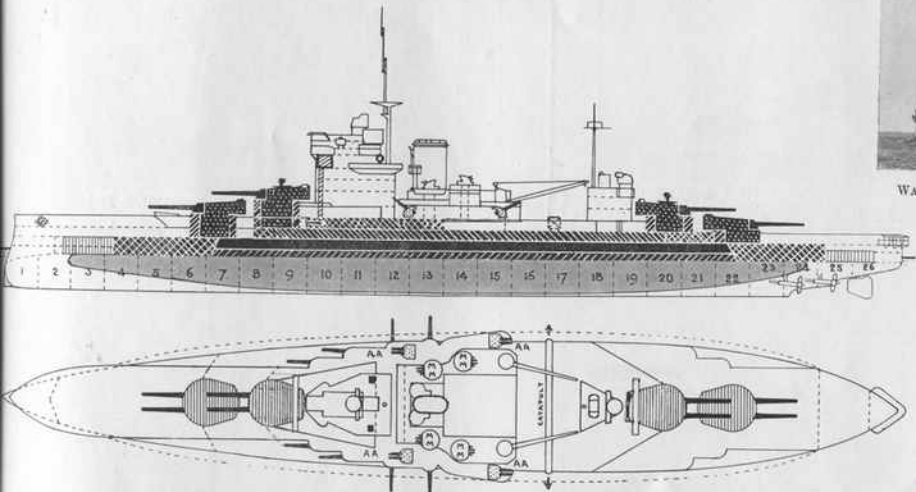
Displacement, 30,600 tons (*about* 35,000 tons *full load*). Complement, 1124-1184. All fitted as flagships.

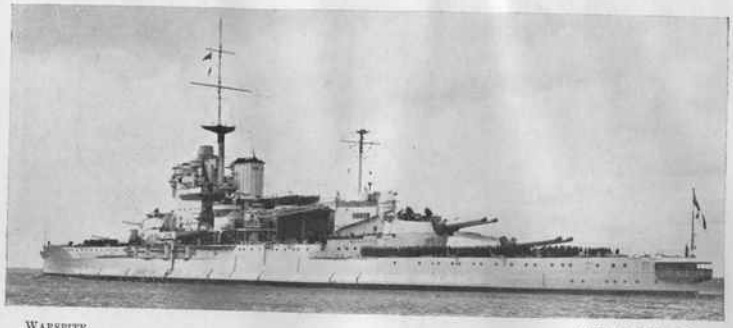
Length (*p.p.*), 600 feet; (*o.a.*) { 643¾ ft., except *Valiant*, 639¾ ft. } (*w.l.*) 634½ feet. Beam, 104 feet. { *Mean* draught, 30¾ feet; *Max.* „ 33½

Guns: (*Warspite*)
8—15 inch, 42 cal.
8—6 inch, 50 cal.
8—4 inch AA.
4—3 pdr.
5 M.G.
10 Lewis.
(besides multi-M.G.)

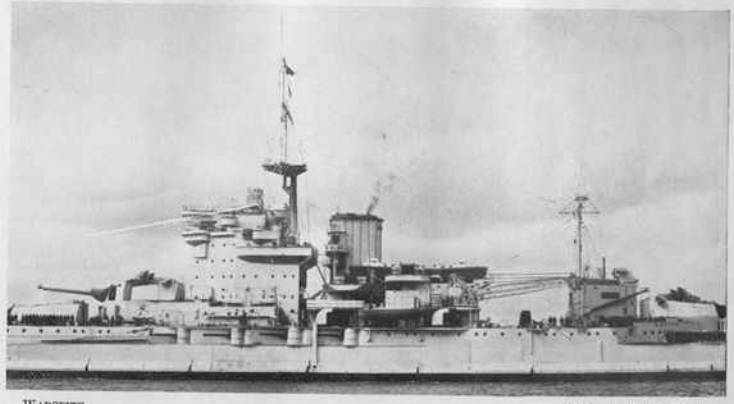
Aircraft:
4, with catapult.
(Photos show positions.)

Armour:
Originally as for *Barham* (vide a later page) but has been modified extensively as a result of reconstruction. All are fitted with bulges.





WARSPITE. 1937, *Wright & Logan.*



WARSPITE. 1937, *Wright & Logan.*

Machinery: Parsons geared turbine, but *Valiant* had Brown-Curtis before reconstruction. Geared cruising turbines in all ships. Boilers: Admiralty 3-drum type. Designed H.P.: 80,000 as reconstructed = 24 kts. Oil fuel: 650 tons *normal*, 3,400 tons *max.* Radius of action: *about* 4,400 miles.

General Notes.—First four begun under 1912 Estimates. *Malaya*, extra ship, gift of Federated Malay States. Cost, nearly £3,000,000 per ship. (*Q.E.*, £3,014,103; *Malaya*, £2,945,709; *Warspite*, £2,524,148.) *Q.E.*, *Barham* and *Warspite* have stern walks. Re-construction of this class, between 1925 and 1933, involved an expenditure of about £1,000,000 per ship; it included the remodelling of control top and bridgework and the trunking of the fore-funnel into the second. Two Torpedo tubes were removed. In 1934 *Warspite* and *Malaya* were taken in hand for further re-construction of an extensive character involving the provision of new turbines, additional protection, increased accommodation for aircraft and augmented AA. armament. In the case of the *Malaya*, the modernisation included about 60 per cent of ship's structure, but in the *Warspite* it was much more extensive. Cost of alterations, £2,302,000 (*Warspite*), £976,963 (*Malaya*). Both completed refits in 1937, since which date *Valiant* and *Queen Elizabeth* have undergone similar renovation to *Warspite*. *Valiant* was re-engined by Fairfield, *Q. E.* by Parsons.

Gunnery Notes.—15 inch guns and mountings designed for 20° elevation (increased to 30° when reconstructed). In *Warspite*, after main deck battery is now built in flush with ship's side, and four of original 12 guns have been removed.

Engineering Notes.—These ships steam splendidly, and can maintain a high average speed for long periods.

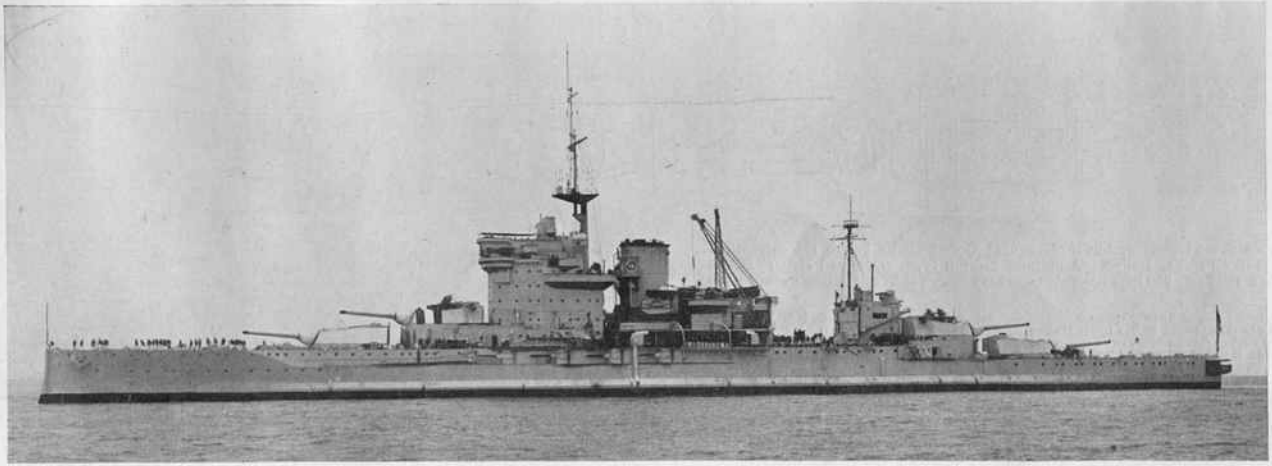
Appearance Notes.—As rebuilt, above 3 ships differ completely from former appearance, as will be seen by comparison of *Warspite* with *Barham*.

Name.	*Builder.*	*Machinery.*	*Laid down.*	*Completed.*	*Trials.*	*Boilers.*
Queen Elizabeth	Portsmouth	Wallsend	Oct. '12	Jan., '15	75,130=	Admiralty Type
Warspite	Devonport	Hawthorn	Oct. '12	Mar., '15	77,510=	
Valiant	Fairfield	Fairfield	Jan. '13	Feb., '16	71,112=	
Barham	Clydebank	Clydebank	Feb. '13	Oct. '15	76,575=	24 Yarrow
Malaya	Elswick	Wallsend	Oct. '13	Feb. '16	76,074=	24 Babcock

WARSPITE. 1937, *Wright & Logan.*

MALAYA. 1937, *R. Perkins.*

(*Vide following page*)



WARSPITE. 1937, *Charles E. Brown.*

(Queen Elizabeth Class—4th and 5th Ships)

BARHAM (31st Dec., 1914). **MALAYA** (18th Mar., 1915).

Displacement, 31,100 tons (*about* 35,100 tons *full load*). Complement, 1124-1184. All fitted as flagships.

Length (*p.p.*), 600 feet; (*o.a.*) { 643¾ ft., except / *Malaya*, 639¾ ft. } (*w.l.*) 634½ feet. Beam, 104 feet. { *Mean* draught, 30¾ feet. / *Max.* ,, 33½ ,, }

Both fitted as flagships.

Guns:
- 8—15 inch, 42 cal.
- 12—6 inch, 50 cal.
- 8—4 inch AA.
- 4—3 pdr.
- 5 M.G.
- 10 Lewis.

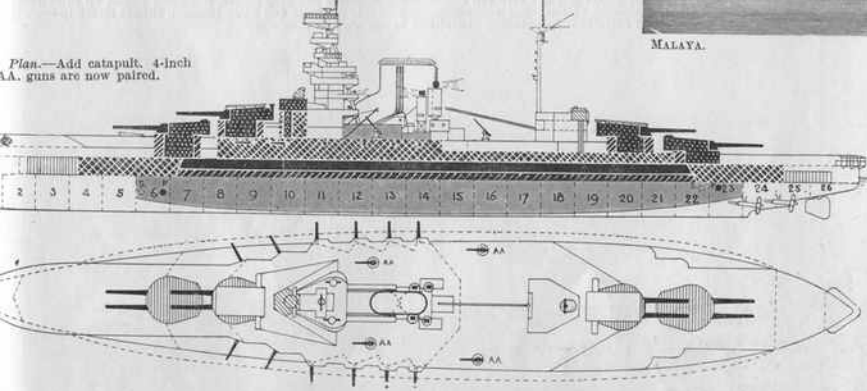
(besides multi-M.G.)

Torpedo tubes:
- 2—21 inch in *Barham*.

Aircraft:
- 4, with catapult, in *Malaya*.
- 1, with catapult, in *Barham*.

Vertical:
- Armour (K.C.): (*Barham, Malaya's* protection has been modified and improved.)
- 13″ on waterline
- 6″—4″ over w.l. } Side
- 6″—4″ (ends)
- 6″, 4″ Bulkheads (f. & a.)
- 6″ Battery
- 10″—7″ Barbettes
- 11″ Gunhouses
- 6″—3″ C.T. base
- 14″ C.T. (6″—2″ Hood)
- 4″ Fore com. tube
- 6″ Torpedo C.T.

Deck:
- Armour (H.T.):
- 1″ Fo'xle (over battery).
- 2″—1½″ Upper
- 1½″ Main fwd. & aft.
- 1″ Middle
- 3″ (ends) } Lower.
- 1 (amidships) }
- Special Protec.
- 2″—1″ Torp. pro. b'lkh'ds between end barbettes.



Plan.—Add catapult. 4-inch A.A. guns are now paired.

Malaya.

1937. *R. Perkins.*

Barham.

1938. *Wright & Logan*

Machinery: Parsons geared turbine in *Malaya*, Brown-Curtis direct drive in *Barham*. Geared cruising turbines in both. Designed H.P.: 75,000 = 25 kts. (reduced by fitting of bulges). Oil fuel: 650 tons *normal*, 3,400 tons *max*. Radius of action: *about* 4,400 miles.

Appearance Notes.—*Barham* has tripod mainmast and catapult on roof of X turret, flag deck extended aft to funnel and after shelter deck built up.

Malaya has funnel encased by platforms and S.L. redistributed. Large hangar abeam of funnel, and new type (athwartship) catapult before mainmast.

For other notes and data concerning these two ships, see earlier page describing first 3 units of this class

(Queen Elizabeth Class—4th and 5th Ships)

BARHAM (31st Dec., 1914), **MALAYA** (18th Mar., 1915).

Displacement, 31,100 tons (*about* 35,100 tons *full load*). Complement, 1124-1184. All fitted as flagships.

Length (*p.p.*), 600 feet; (*o.a.*) { 643¾ ft., except *Malaya*, 639¾ ft. } (*w.l.*) 634½ feet. Beam, 104 feet. { *Mean* draught, 30½ feet *Max.* „ 33½ „

Both fitted as flagships.

Guns:
8—15 inch, 42 cal.
12—6 inch, 50 cal.
8—4 inch AA.
4—3 pdr.
5 M.G.
10 Lewis.
(besides multi-M.G.)

Torpedo tubes:
2—21 inch in *Barham*.

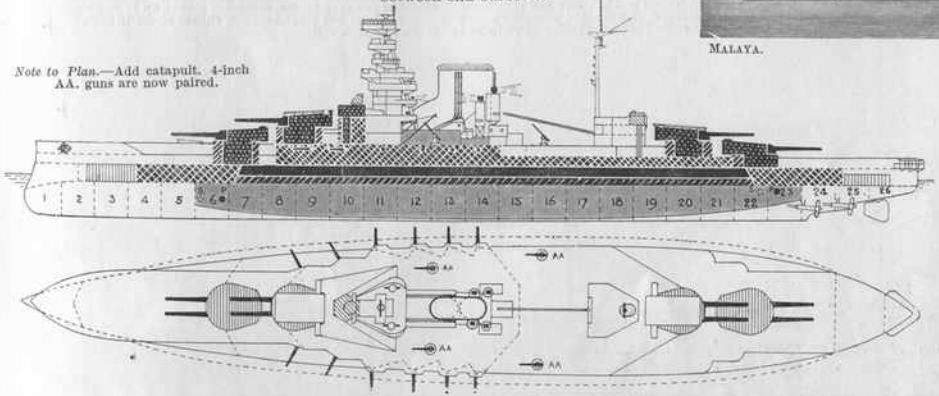
Aircraft:
4, with catapult, in *Malaya*.
1, with catapult, in *Barham*.

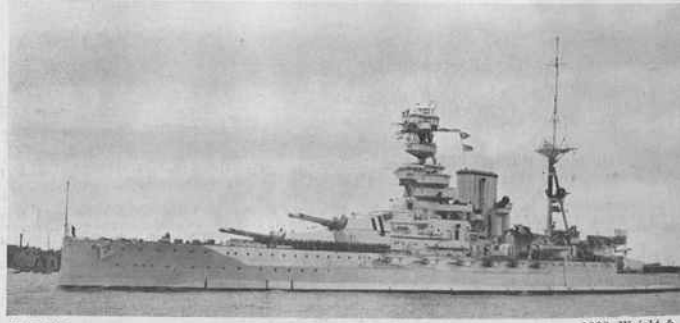
Vertical:
Armour (K.C.): (*Barham, Malaya's* protection has been modified and improved.)
13″ on waterline .. } Side
6″—4″ over w.l. .. } Side
6″—4″ (ends) .... } Side
6″, 4″ Bulkheads (f. & a.)
6″ Battery .....
10″—7″ Barbettes .....
11″ Gunhouses .....
6″—3″ C.T. base .....
14″ C.T. (6″—2″ Hood) ..
4″ Fore com. tube ....
6″ Torpedo C.T.....

Deck.:
Armour (H.T.):
1″ Fo'xle (over battery).
2″—1½″ Upper .....
1½″ Main fwd. & aft. ..
1″ Middle .....
3″ (ends) } Lower.
1 (amidships) } Lower.
Special Protec.
2″—1″ Torp. pro. b'lkh'ds between end barbettes.

Malaya. 1937, *R. P*

Note to Plan.—Add catapult. 4-inch AA. guns are now paired.





Barham. 1938, *Wright &*

Machinery: Parsons geared turbine in *Malaya*, Brown-Curtis direct drive in *Barham*. Geared cruising turbines in both. Designed H.P.: 75,000 = 25 kts. (reduced by fitting of bulges). Oil fuel: 650 tons *normal*, 3,400 tons *max*. Radius of action: *about* 4,400 miles.

Appearance Notes.—*Barham* has tripod mainmast and catapult on roof of X turret, flag deck extended aft to funnel and after shelter deck built up.
Malaya has funnel encased by platforms and S.L. redistributed. Large hangar abeam of funnel, and new type (athwartship) catapult before mainmast.

For other notes and data concerning these two ships, see earlier page describing first 3 units of this class

(Royal Sovereign Class.)—All fitted as Flagships.

ROYAL SOVEREIGN (29th April, 1915), **RESOLUTION** (14th Jan., 1916), **RAMILLIES** (12th Sept., 1916), **REVENGE** (29th May, 1915)

Displacement, 29,150 tons, *about* 33,500 tons *full load*. Complement, 1009-1146.

Length (*p.p.*) 580 feet, (*w.l.*) 614½ feet, (*o.a.*) 620½ feet.† Beam, about 102½ feet. *Mean* draught, 28½ feet.

†*Revenge* 624½ feet (*o.a.*)

Guns:
- 8—15 inch, 42 cal.
- 12—6 inch, 50 cal.
- 8—4 inch AA.
- 4—3 pdr.
- 1—12 pdr. Field
- 5 M.G.
- 10 Lewis

(besides multi-M.G.)

Torpedo tubes (21 inch):
- 2 *submerged* in *Revenge*.

Armour (H.T.):

Deck:
- 1″ Fo'xle over Battery
- 1½″—1½″ Upper
- 2″, 1½″, 1″ Main
- 2½″, 1″ (forw'd) } Lower
- 4″, 3″, 2½″ (aft) }

Special Protection:
- 1½″—1″ Torp. Prot. b.h. between end barbettes.

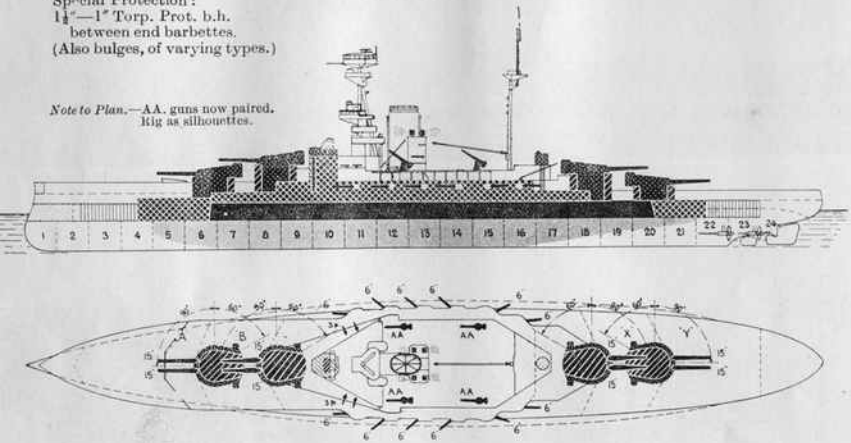
(Also bulges, of varying types.)

Armour (K.):

Vertical:
- 13″ Belt
- 6″—4″ Belt (ends)
- 1″ Belt (bow)
- 6″, 4″ Bulkheads (f. & a.)
- 6″ Battery
- 10″—7″ Barbettes
- 13″—5″ Gunhouses
- 6″—3″ C.T. Base
- 11″ C.T. (6″—3″ hood)
- 6″ Fore com. tube
- 6″ Torp. con. tower
- 4″ Tube (T.C. tower)

Aircraft:
- 1 with catapult (on X turret), in Resolution.

Note to Plan.—AA. guns now paired. Rig as silhouettes.



Machinery: Turbine, Parsons. Boilers: (see *Notes*). 4 shafts. Designed H.P.: 40,000 = under 22 knots *with* bulges. Oil fuel: *normal*, 900 tons; *maximum*, 3,230 tons.

Gunnery Notes.—6 inch batteries are wet in head seas, but dwarf walls in battery retain water and it is rapidly drained away. 4 inch AA. mounted in place of former 3 inch AA. in 1924–25. Two superstructure 6 inch removed in 1927–28.

Armour Notes.—Thicknesses much as *Queen Elizabeth* class, but armour differently distributed. Barbettes 6″—4″ as they descend behind belt. Gunhouses, 13″ face, 11″ sides and rear; crowns 5″. In these ships 2″ protective deck has a high 2″ slope behind belt, so that flat part of protection can be put on main deck and at top of belt, instead of a deck lower. Internal protection is very good, and with protective bulges, defence against underwater attack is very strong. All refitted with bulges, which in *Ramillies* extends almost up to battery.

Engineering Notes.—Designed to burn coal, but while building "all oil fuel" was adopted, so that 23 kts. would be secured with the resulting increase of H.P. Addition of bulges has brought speed down again to about 22 kts. Main Turbines are direct drive, cruising Turbines geared.

General Notes.—Begun under 1913-14 Estimates. *Revenge* first named *Renown*. *Ramillies* injured herself at launch and was delayed in completion. They are fine ships, but suffer rather from reduced freeboard. Searchlights on mainmast removed 1922. Refits: *R. Sovereign*, 1927–28; *Ramillies* and *Resolution*, 1926–27; *Revenge*, 1928; *Resolution*, 1930; *Revenge*, 1936–37, *R. Sovereign*, 1937–38; *Resolution*, 1937–38; *Ramillies*, 1938–39. *Royal Oak*, of this class, sunk Oct. 14, 1939.

Cost.—Averaged about £2,500,000.

Royal Sovereign. (Ramillies similar, but tripod mainmast) 1936, *Wright & Logan*.

Appearance Notes.—*Resolution* has clinker screen to funnel, tripod mainmast, and catapult on X turret. *R. Sovereign* retains pole mainmast and has very tall charthouse. *Ramillies* has deep bulges, extending almost up to battery, and tripod mainmast. *Revenge* has pole mainmast with S.L. platform and short topmast, clinker screen to funnel, sternwalk and extra heavy forebridge. Details of bridge vary in each ship.

Resolution. (Revenge similar, but pole mainmast and no catapult) 1939, *Wright & Logan*.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials:—*	*Boilers*
Royal Sovereign	Portsmouth Y.	Parsons	Jan.'14	May, '16	41,115=21·6	18 Babcock
Resolution	Palmer	Palmer	Nov.'13	Dec., '16	41,406=	18 Yarrow
Ramillies	Beardmore*	Beardmore	Nov.'13	Sept. '17	42,356=21·5	18 Babcock
Revenge	Vickers	Vickers	Dec.'13	Mar., '16	42,962=21·9	18 Babcock

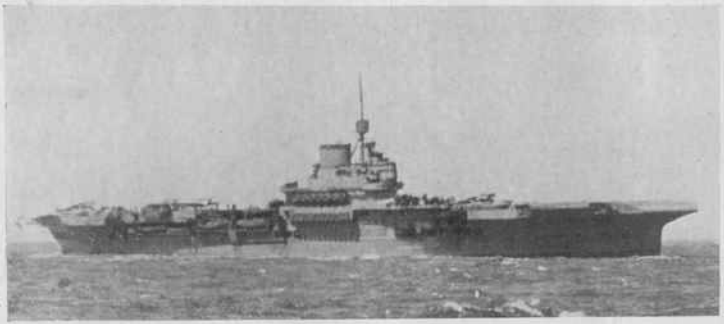
*Towed to Liverpool and completed by Cammell Laird & Co.

IMPLACABLE, INDEFATIGABLE (Building).

Displacement : 23,000 tons. Complement : 1,600.

Dimensions : 760 × 95¾ × 22¼ feet.

S.H.P. : 140,000 = 32 knots.



ILLUSTRIOUS. 1940, *Official*

(ILLUSTRIOUS CLASS—4 Ships.)

ILLUSTRIOUS, (April 5, 1939), **VICTORIOUS,** (Sept. 14, 1939), **FORMIDABLE,** (August 17, 1939), **INDOMITABLE,** (Nov., 1939).

Displacement : 23,000 tons. Complement : 1,600.

Length : 753 feet. Beam : 95 feet. Draught : 24 feet.

Guns :
16—4·5 inch (dual purpose).

Armour :
Not reported.

Aircraft :

Machinery : Parsons geared turbines. 3 shafts. S.H.P. : 110,000 = over 30 knots. Boilers : 3-drum type.

Est.	*Name*	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*
1936	*Illustrious*	V.-A., Barrow	Vickers-Armstrongs	13/1/37	27/4/37	*To be* 1940
1936	*Victorious*	V.-A., Tyne	Wallsend Slipway	13/1/37	4/5/37	
1937	*Formidable*	Harland & Wolff	Harland & Wolff	19/3/37	17/6/37	
1937	*Indomitable*	V.-A., Barrow	Vickers-Armstrongs	6/7/37	10/11/37	
1938	*Implacable*	Fairfield	Fairfield	11/10/38	2/39	„ „ 1942
1939	*Indefatigable*	Clydebank	Clydebank	19/6/39	/39	

ARK ROYAL 1938, *Wright & Logan.*

ARK ROYAL. 1938 *Wright & Logan.*

(*For particulars of above ship, see following page.*)

ARK ROYAL (April 13, 1937).

Displacement : 22,000 tons. (*About* 27,000 tons *full load.*) Complement : 1,575
Length (*pp.*) 685 feet ; (*w.l.*) 721½ feet ; (*o.a.*) 800 feet. Beam : 94¾ feet. Draught : 22⅝ feet (*mean*).

Guns

16—4·5 inch (dual purpose).
4—3 pdr.
6 multiple pompoms.
8 multiple M.G.

Aircraft :

60
(originally 72 were provided for, but former is the practical figure for operational purposes.)

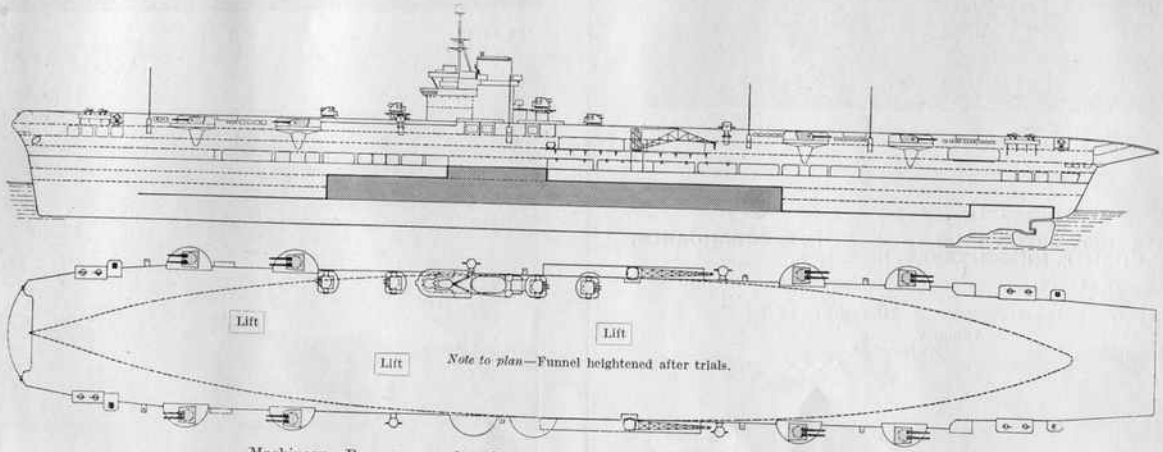
Armour :

Vitals are protected by a heavy deck, and vertical protection is on a sufficient scale to prevent destruction by lucky hits. Underwater protection of an improved bulge type has been provided.

1938, *Wright & Logan.*

Names of decks in descending order :

Flight deck
Upper gallery deck
Upper hangar deck
Lower gallery deck
Lower hangar deck
Upper deck
Main deck
Lower deck
Platform deck.

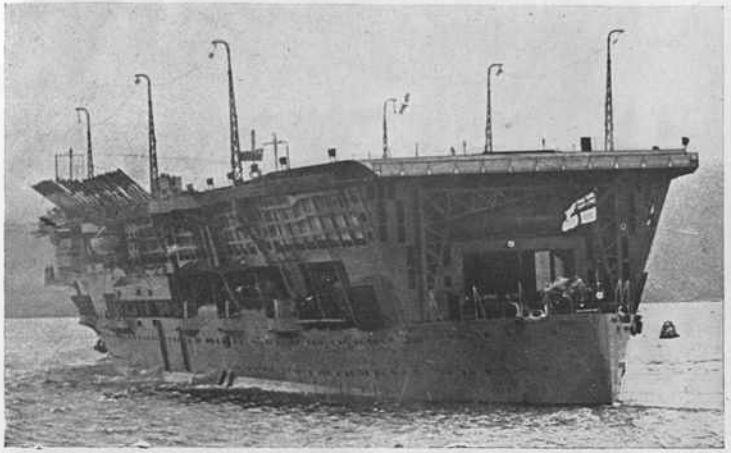


Note to plan—Funnel heightened after trials.

Machinery : Parsons geared turbines. 3 shafts. S.H.P. : 102,000 = 30·75 kts. (trials gave 31·75 kts. with 103,000 S.H.P.). 6 high pressure watertube boilers of 3-drum type, fitted with superheaters.

General Notes.—Hangars are arranged on two decks, and are exceptionally roomy, with elaborate fire-fighting arrangements. 3 lifts for hoisting aircraft to flight deck. 2 hinged cranes for lowering and hoisting seaplanes. At night, navigating lights can be displayed by means of a special telescopic mast, rising from near centre of flight deck. Boats are stored in embrasures, out of which they can be run on a novel system. Accommodation for the numerous personnel is exceptionally good. Wardroom is the biggest in the Royal Navy. Extensive employment of electric welding effected a saving of 500 tons in weight. Fuel endurance exceeds that of any previous British aircraft carrier. Total cost, £3,215,639.

Name.	*Builder and Machinery*	*Ordered.*	*Begun.*	*Completed.*
Ark Royal	Cammell Laird	17/4/35	16/9/35	16/11/38



FURIOUS. (Before refit). 1932 *Photo, R. Perkins.*

FURIOUS (15 August, 1916). Late Cruiser.

Displacement, 22,450 tons. Complement, 748 (about 1,200 with R.A.F. personnel.)

Length, (*p.p.*) 735 feet, (*o.a.*) 786¼ feet. *Beam, 89¾ feet. Draught { *mean* 21⅝ feet. *max.* 25 feet.

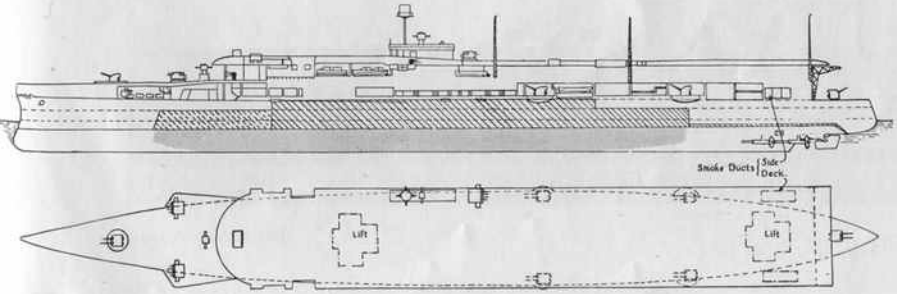
*Outside bulges.

Guns:
12 –4·5 inch, dual purpose.
8 multiple pom-poms.
22 Smaller.

Aircraft:
(Official complement, 33)

Armour:
3″ Belt (amidships).....
2″ Belt (bow). ....
3″—2″ Bulkheads F. & A.....
1″ Decks (H.T. at stern).....
3″—1½″ Decks (H.T. at stern)...

Anti-Torp. Pro.
Shallow bulges .....
1″ H.T. vertical. .....

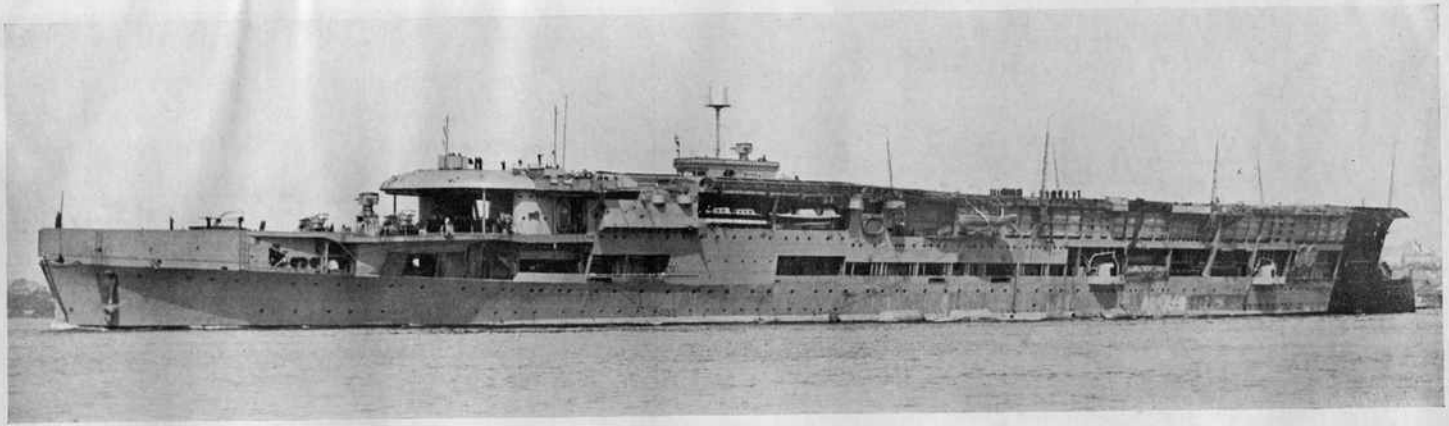


1939, *Norman Parkinson, by courtesy of "The Bystander."*

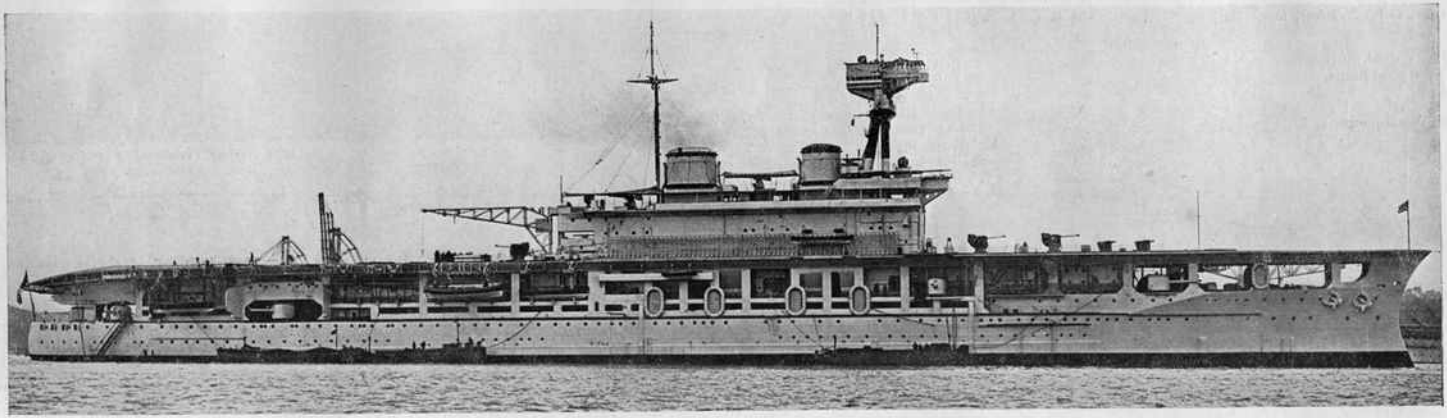
Machinery (by Wallsend Co.): Brown-Curtis (all geared) Turbines. 4 shafts. Boilers: 18 Yarrow. Designed S.H.P. 90,000 = 31 kts. *Trials*: 90,820 = 30 kts. Oil fuel: 4010 tons.

Armour Notes.—3″ Belt consists of 2″ plating over 1″ shell plating, as in Light Cruisers.

General Notes.—Built under Emergency War Programme, by Armstrong Whitworth. Begun June, 1915; prior to completion, forward 18 inch turret suppressed and replaced by a forward flight deck. Completed July, 1917. Rebuilt between Nov., 1917 and March, 1918. Originally intended to be a modified *Courageous*, with 18 inch guns, forward and aft. During reconstruction, 1917–18, after 18 inch gun was removed and replaced by flight deck entailing removal of mainmast. Since conversion, she is said to be rather light, and is good now for 32–33 kts. Including cost of alterations, this ship is said to have absorbed over six million pounds. Underwent re-fit and alteration at H.M. Dockyards, Rosyth and Devonport, 1921–25, after which her appearance was completely altered, the funnel and mast being removed and a new hangar built forward. Smoke is discharged from vents at after end of hangar, or alternatively through flight deck, which measures 700 × 80 feet. Height of flight deck from water line is 75 feet. There are 2 hydraulic lifts from hangars to flight decks.



FURIOUS. (Particulars on preceding page) (Note that stern is painted *black*.). 1939, *Abrahams, Devonport*



EAGLE (Particulars on following page.) 1931 *Photo, R. Perkins.*

EAGLE (8th June, 1918), late Battleship.

Displacement, 22,600 (*deep load*, 26,400) tons. Complement, 748.

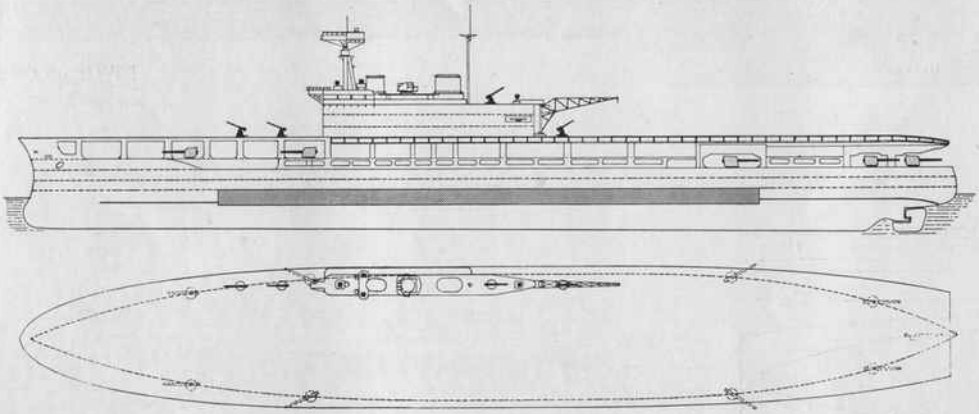
Length { (*p.p.*) 625 feet / (*o.a.*) 667 „ } Beam { 92¾ / 105¼ (*max.*) } feet.* Draught { 24 feet *mean.* / 27 feet *max.* }

* 100 feet, flight deck.

Guns
9—6 inch, 50 cal.
4—4 inch AA.
22 Smaller.

Aircraft:
Official complement is 21.

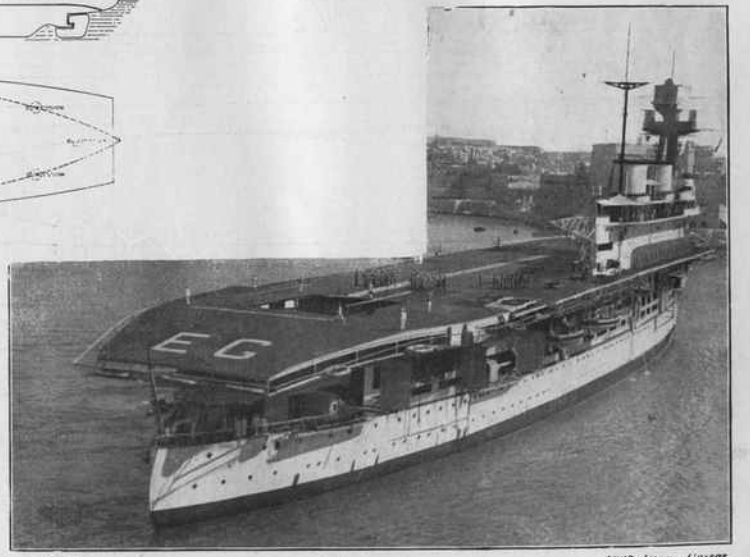
Armour:
...″ Side (amidships).....
...″ Deck .....
Special protection:
Bulges over about four-fifths of length, projecting about 6 feet from side.



Machinery: Brown-Curtis (A.G.) turbines, by J. Brown & Co., Clydebank. Designed S.H.P. 50,000 = 24 kts. (No details available of trials). Boilers: 32 Yarrow. Oil fuel: *Normal*, 2500 tons; *maximum*, 3750 tons.

General Notes.—Designed and begun by Armstrong Whitworth, February, 1913, for Chile, as *Almirante Cochrane*, a Dreadnought Battleship and sister to Chilean *Almirante Latorre*. All work on this ship ceased in August, 1914, and she lay on her slip until 1917, when her purchase was negotiated with the Chilean Government. Her design was modified to an Aircraft Carrier by Sir E. H. Tennyson d'Eyncourt. Commissioned for ship and flying trials with one funnel and pole mast, 13th April, 1920. As a result of trials made off Scilly Islands, put in hand at H.M. Dockyard, Portsmouth, for modifications. November, 1920. Finally completed in 1924. Bought from Chile for £1,334,358, sums subsequently expended have raised total cost to £4,617,636 (Statement by First Lord, April 1927). Refit 1932.

Bow view. *Devonport.*



EAGLE. 1927 *Photo, Caesar.*

HERMES (11th September, 1919).

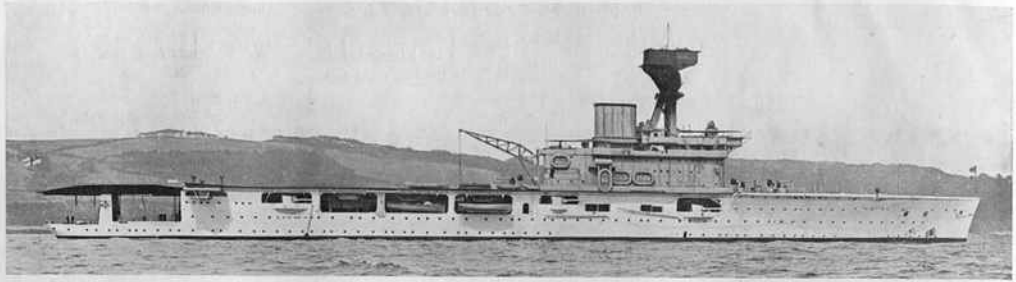
Displacement, 10,850 tons *normal* (about 12,900 tons *full load*). Complement, 664.

Length { *p.p.* 548 feet / *o.a.* 598 „ } Beam { *w.l.* / outside bulges, 70 feet / over flight deck, 90 feet } Draught { *mean* 18¾ feet. / *max* — „ }

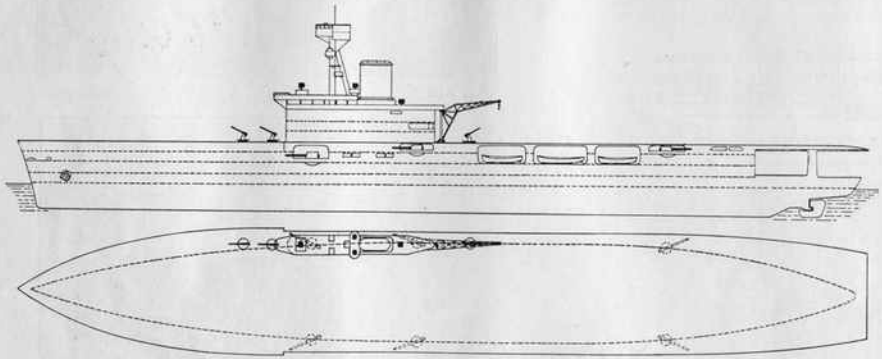
Guns:
6—5·5 inch, 50 cal.
3—4 inch AA.
18 Smaller.

Aircraft:
Official complement is 15.

Armour:
Not known—probably of Light Cruiser type.
Anti-Torpedo Protection Bulges.



HERMES. 1934½ *Photo, R. Perkins.*



Machinery: Parsons (all geared) turbines. Designed S.H.P. 40,000=25 kts. 2 shafts.
Boilers: Yarrow (small Tube). Oil fuel: 1000 tons *normal*. 2000 tons *max*.

Name	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*	*Trials*
Hermes	Armstrong Whitworth Devonport D.Y.*	Parsons	July, '17	15 Jan., '18	19/2/24	

* Towed here for completion, January, 1920.

General Notes.—Begun under Emergency War Programme. First vessel specially designed by Admiralty as an Aircraft Carrier. Is a splendid sea boat, very steady, with remarkably little rolling propensity.

Can carry 20 sea or aeroplanes. Special ventilation system to lessen danger of fire from petrol fumes, and new types of gear for handling, landing and flying-off aircraft. Hangar aft, with electric lift from quarterdeck to flight deck, 'planes being wheeled out from hangar on to lift through an opening normally closed by shutters. Transporter cranes fitted forward and aft. Refit 1933-34.

1938, *R. Perkins.*

EXETER (July 18th, 1929). Devonport D.Y.

"Standard" displacement, 8390 tons. Complement, 600.

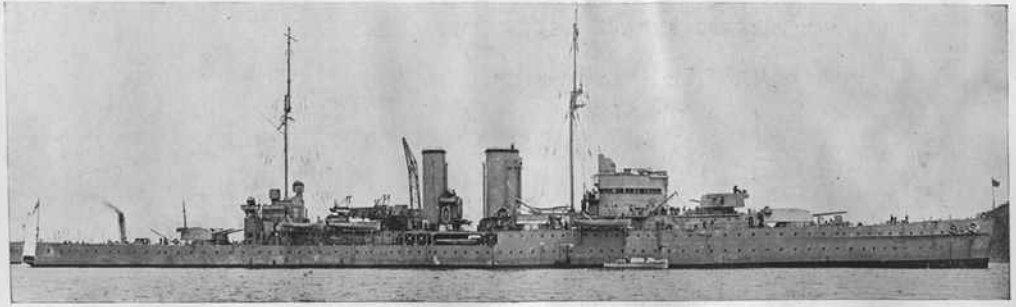
Length 540 (*p.p.*), 575 (*o.a.*) feet. Beam, 58 feet. Draught, 17 feet (*mean*).

Guns:
- 6—8 inch, 50 cal.
- 8—4 inch AA.
- 4—3 pdr.
- 14 smaller.

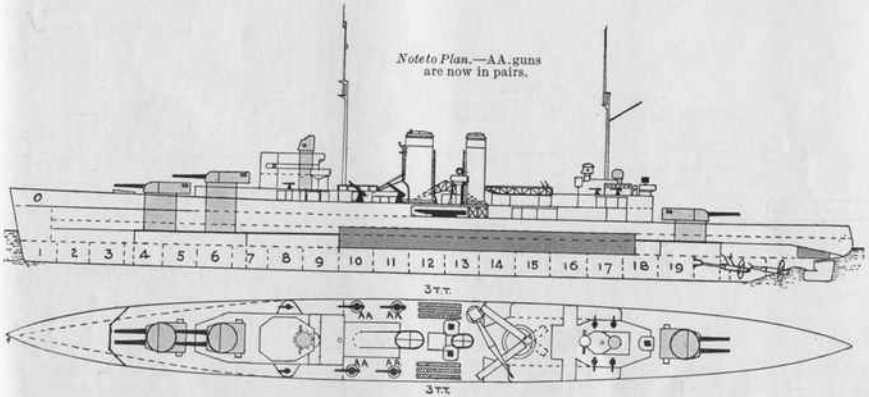
Torpedo Tubes:
- 6—21 inch (tripled).

Aircraft:
- 2—with 2 catapults.

Armour:
- 2″ Deck
- 3″ C.T.
- 2″—3″ Side at W.L.

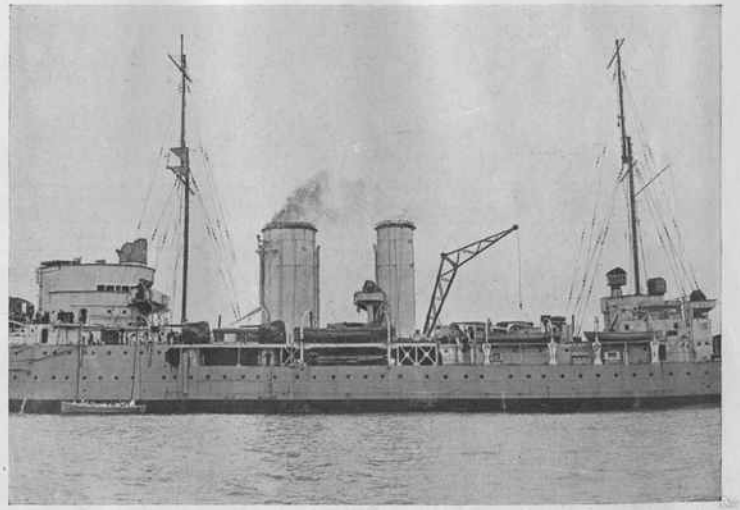


EXETER. 1933 *Photo, R. Perkins*



Machinery: Parsons geared turbines. 4 shafts. Designed H.P. 80,000=32 kts. Oil fuel: 1900 tons. Radius, 10,000 miles at 11–14 kts. Boilers: 8 Admiralty 3-drum type.

General Notes.—Designed by Sir William Berry and laid down at Devonport in August, 1928. Completed in May, 1931. Design is similar to *York*, with an increase in beam of 1 foot. Was to have had three raking funnels and catapult on raised turret, with masts spaced as in *York*, but the foremost funnel was trunked into the second in order to improve the habitability of the bridge and save space and weight. The catapult on the second turret having been dispensed with, the bridge has been lowered so that the director is only 60 feet above water. Note the absence of wings to the bridge and the searchlight arrangement. The absence of rake to the masts and funnels, and the thickening of the second funnel by 4 feet enables her to be distinguished without difficulty from the *York*.



(*Forecastle plating now extends to second AA. gun on either side.*) 1931 *Photo, R. Perkins.*

YORK (July 17th, 1928). Palmers.

"Standard" displacement, 8250 tons. Complement, 600.

Length, 540 (*p.p.*), 575 (*o.a.*) feet. Beam, 57 feet.

Draught, 17 feet (*mean*).

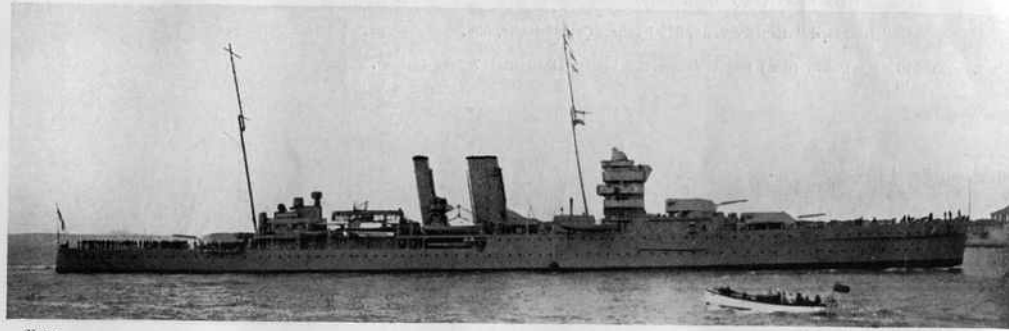
Guns:
6—8 inch, 50 cal.
8—4 inch AA.
4—3 pdr.
14 smaller.

Torpedo Tubes:
6—21 inch (tripled)

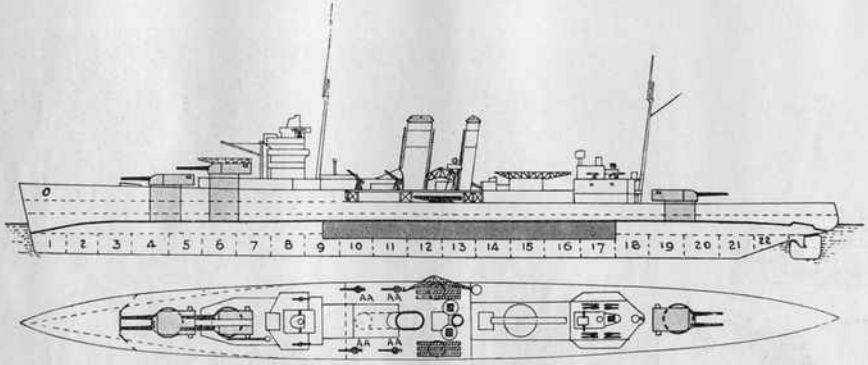
Aircraft:
1, with catapult.

Armour:
2″ Deck
3″ C.T.
2″—3″ Side at W.L.

Note to Plan.—Catapult shown on "B" turret does not exist. The four 3 pdr. on after control platform are mounted singly and not as shown. 4 inch AA. guns should be shown in pairs.

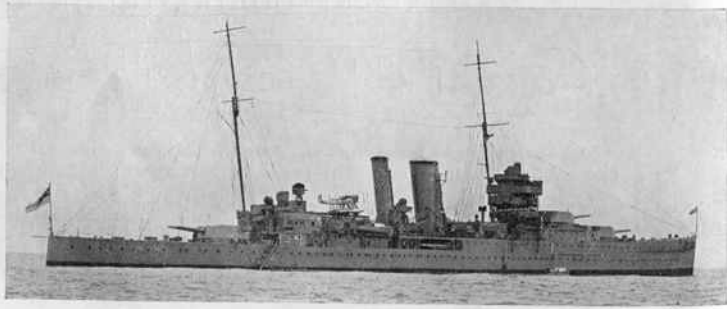


YORK. 1933 *Photo, Cribb.*



Machinery: Parsons geared turbines. 4 shafts. Designed H.P. 80,000=32·25 kts. Oil Fuel: 1900 tons. Radius, 10,000 miles at 11—14 kts. Boilers: 8 Admiralty 3-drum type.

General Notes.—Designed by Sir William Berry and marks the first attempt on the part of one of the Treaty Powers to break away from the 10,000 ton type of cruiser. To save 1,600 tons, two 8 inch guns were sacrificed, the resulting ship being little inferior to the 10,000 tonners, all things being considered. *York* was laid down at Messrs. Palmers' yard at Jarrow in May, 1927, and completed in June, 1930. The original design allowed for three funnels but during 1928 the plans were modified and the foremost funnel was trunked into the second. In order to clear the catapult shown in the plan on the second turret, the bridge was raised, and consequently the funnels. It has been found, however, that the turrets are too light for the catapult to be carried, so it and the derrick have been dispensed with. The reversion to the triple torpedo tubes is due to limitation of training space only.



YORK. 1933 *Photo, R. Perkins*

(Dorsetshire Class—2 Ships).

ORSETSHIRE (January 29th, 1929). Portsmouth Dockyard.

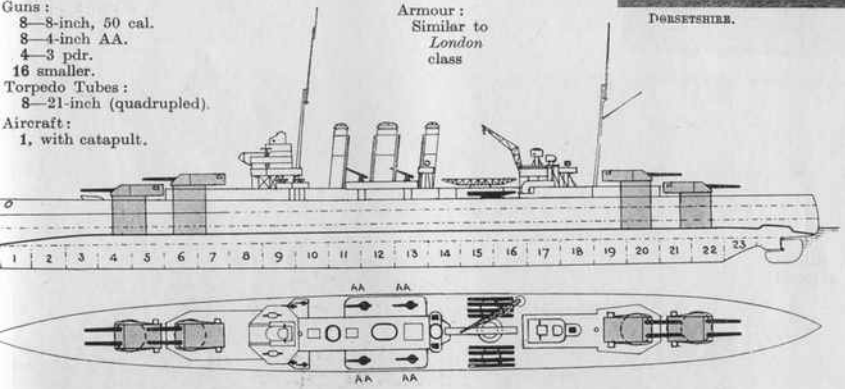
ORFOLK (December 12th, 1928). Fairfield.

Displacement, 9,975 and 9,925 tons, respectively. Complement, 650.

ngth, 590 (*p.p.*), 630 (*o.a.*) feet. Beam, 66 feet. Draught, 17 feet (*mean*).

Guns :
8—8-inch, 50 cal.
8—4-inch AA.
4—3 pdr.
16 smaller.
Torpedo Tubes :
8—21-inch (quadrupled).
Aircraft :
1, with catapult.

Armour :
Similar to *London* class



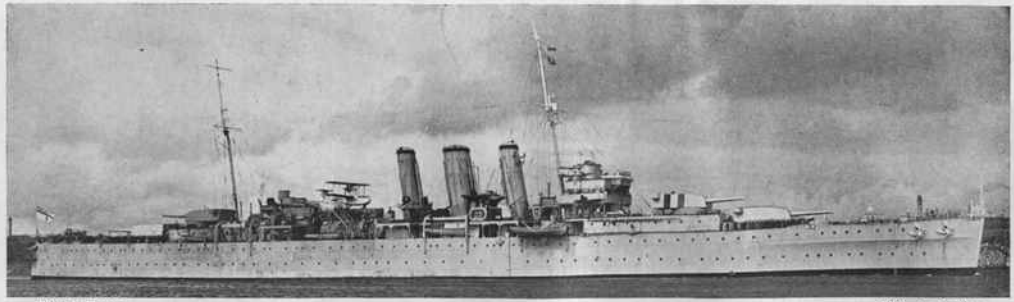
te to Plan.—Crane is actually mounted forward of T.T. AA. armament has been augmented, guns being paired.

Machinery Parsons geared turbines. 4 shafts. Designed S.H.P. 80,000 = 32·25 kts. Oil el : 3200 tons. Boilers : 8 Admiralty 3-drum type. Machinery of *Dorsetshire* by Cammell ird, *Norfolk* by Fairfield.

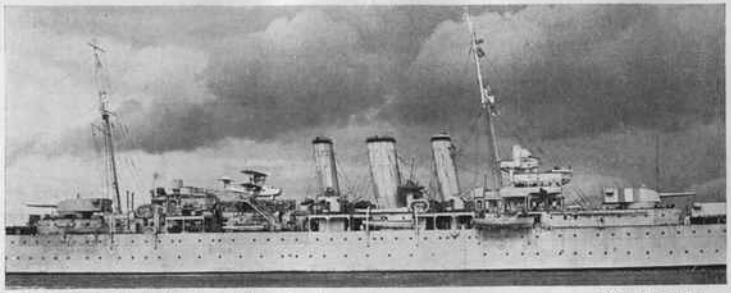
gineering Notes.—Trials averaged 81,200 = 32·8 kts.

neral Notes.—Designed by Sir William Berry and built under the 1926-27 Estimates. *Dorsetshire* begun September, 1927, and completed July, 1930 ; *Norfolk* in July, 1927, and completed in June, 1930. Two other ships of this class, *Surrey* and *Northumberland* were provided for under the 1926 Estimates, but were subsequently cancelled.

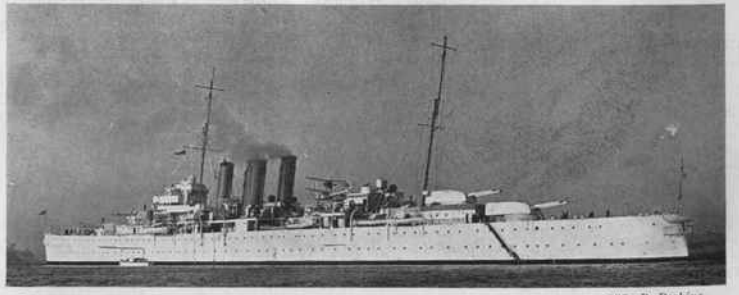
ppearance Notes.—Can be distinguished from *London* class by lower bridge, positions of AA. guns, and sternwalks ; from *Kent* by absence of tall S.L. tower forward of mainmast ; and from other ships of *Kent* class by absence of hangar.



Dorsetshire. 1937, *R. Perkins.*



Dorsetshire, showing increased AA. armament. 1937, *R. Perkins.*



Norfolk 1937, *R. Perkins.*

(Dorsetshire Class—2 Ships).

DORSETSHIRE (January 29th, 1929). Portsmouth Dockyard.

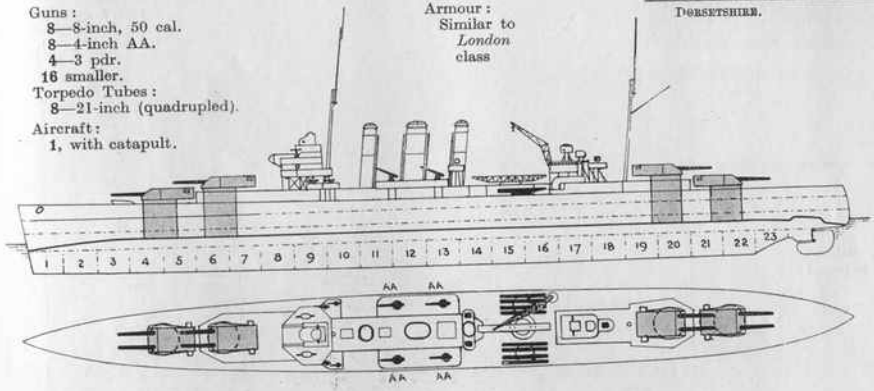
NORFOLK (December 12th, 1928). Fairfield.

Displacement, 9,975 and 9,925 tons, respectively. Complement, 650.

Length, 590 (*p.p.*), 630 (*o.a.*) feet. Beam, 66 feet. Draught, 17 feet (*mean*).

Guns :
8—8-inch, 50 cal.
8—4-inch AA.
4—3 pdr.
16 smaller.
Torpedo Tubes :
8—21-inch (quadrupled).
Aircraft :
1, with catapult.

Armour :
Similar to *London* class



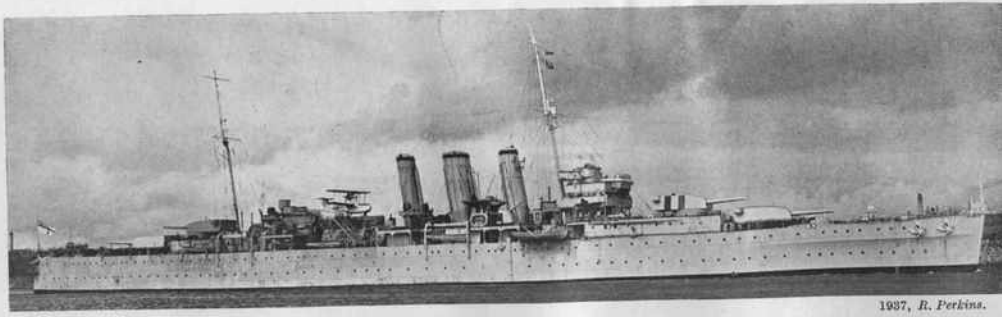
Note to Plan.—Crane is actually mounted forward of T.T. AA. armament has been augmented, guns being paired.

Machinery Parsons geared turbines. 4 shafts. Designed S.H.P. 80,000 = 32·25 kts. Oil fuel : 3200 tons. Boilers : 8 Admiralty 3-drum type. Machinery of *Dorsetshire* by Cammell Laird, *Norfolk* by Fairfield.

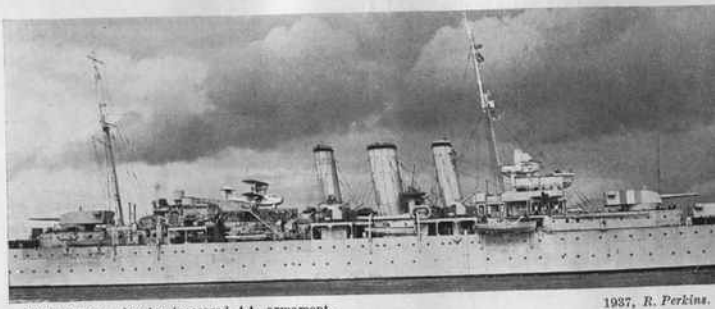
Engineering Notes.—Trials averaged 81,200 = 32·8 kts.

General Notes.—Designed by Sir William Berry and built under the 1926-27 Estimates. *Dorsetshire* begun September, 1927, and completed July, 1930 ; *Norfolk* in July, 1927, and completed in June, 1930. Two other ships of this class, *Surrey* and *Northumberland* were provided for under the 1926 Estimates, but were subsequently cancelled.

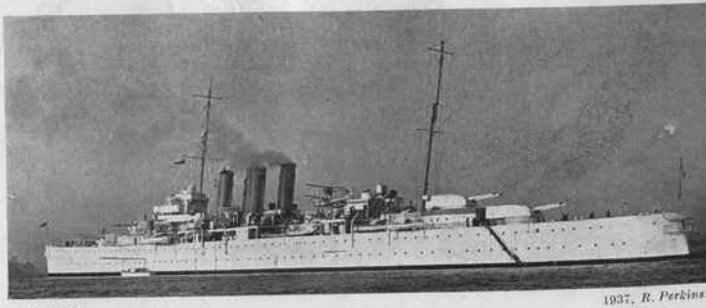
Appearance Notes.—Can be distinguished from *London* class by lower bridge, positions of AA. guns, and sternwalks ; from *Kent* by absence of tall S.L. tower forward of mainmast ; and from other ships of *Kent* class by absence of hangar.



Dorsetshire. 1937, *R. Perkins.*



Dorsetshire, showing increased AA. armament. 1937, *R. Perkins.*



Norfolk 1937, *R. Perkins.*

DEVONSHIRE. 1936, *R. Perkins.*

(LONDON CLASS—4 SHIPS.)

DEVONSHIRE (Oct. 22nd, 1927).
LONDON (Sept. 14th, 1927).
SHROPSHIRE (July 5th, 1928).
SUSSEX (Feb. 22nd, 1928).

Displacement: First pair, 9,850 tons; second pair, 9,830 tons. Complement, 650.

Length { *p.p.* 595 feet / *o.a.* 633 feet } Beam, 66 feet. Draught, 17 feet (*mean*)

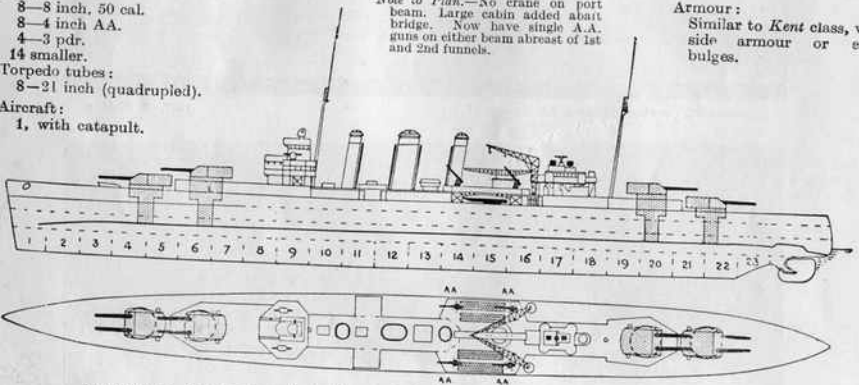
Guns:
8—8 inch, 50 cal.
8—4 inch AA.
4—3 pdr.
14 smaller.

Torpedo tubes:
8—21 inch (quadrupled).

Aircraft:
1, with catapult.

Note to Plan.—No crane on port beam. Large cabin added abaft bridge. Now have single A.A. guns on either beam abreast of 1st and 2nd funnels.

Armour:
Similar to *Kent* class, without side armour or external bulges.



Machinery: Parsons geared turbines. 4 shafts. Designed S.H.P. 80,000 = 32·25 kts. Oil fuel: 3200 tons. Boilers: 8 Admiralty 3-drum type.

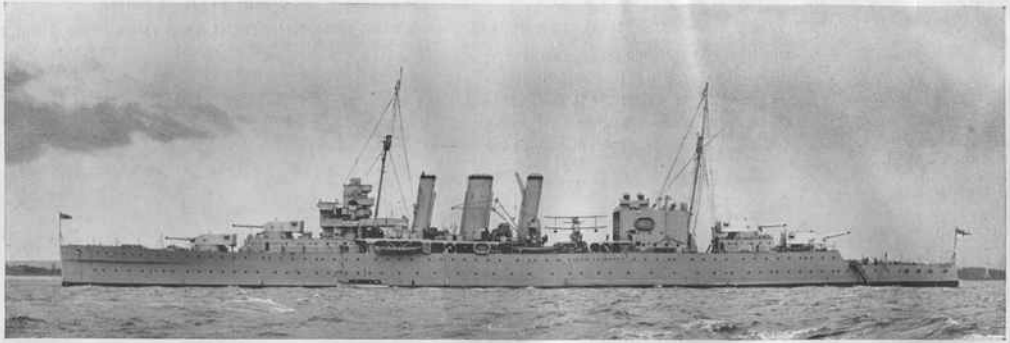
DEVONSHIRE. 1937, *R. Perkins.*

SHROPSHIRE. 1938, *Wright & Logan.*

Name	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*	*Trials*	*Est.*
Devonshire	Devonport Y.	Vickers	1925	16/3/26	19/3/39	Average: 81,200 = 32·8.	1925
London	Portsmouth Y.	Fairfield	1925	22/2/26	5/2/29		
Shropshire	Beardmore	Beardmore	-26	2/26	24/9/29		
Sussex	Hawthorn, Les.	Hawthorn		2/26	26/3/29		

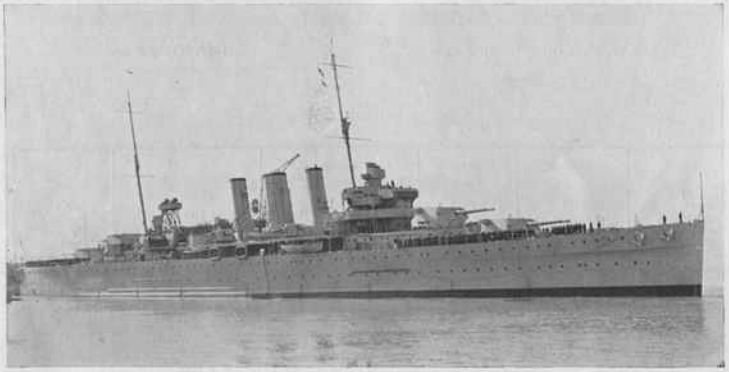
General Notes.—All designed by Sir William J. Berry. Only one crane for aircraft (on starboard side).
Appearance Notes.—Higher bridges than *Dorsetshire* and *Norfolk*. Mainmast is stepped closer to "X" turret than in *Kent* class, and S.L. positions also differ.

CUMBERLAND. 1936, *Cribb.*



CUMBERLAND (SUFFOLK similar, but with high syren brackets). 1936, *Wright & Logan.*

(*For particulars of these ships, see following page*).



KENT. 1938, *Medway Studios.*

CORNWALL (BERWICK similar). 1938, *R. Perkins.*

(KENT CLASS—5 SHIPS.)

BERWICK (March 30th 1926), **CORNWALL** (March 11th, 1926), **CUMBERLAND** (March 16th, 1926), **KENT** (March 16th, 1926), **SUFFOLK** (Feb. 16th, 1926).

Displacement: 10,000 tons, as refitted.

Complement, 679 (710 as flagship).

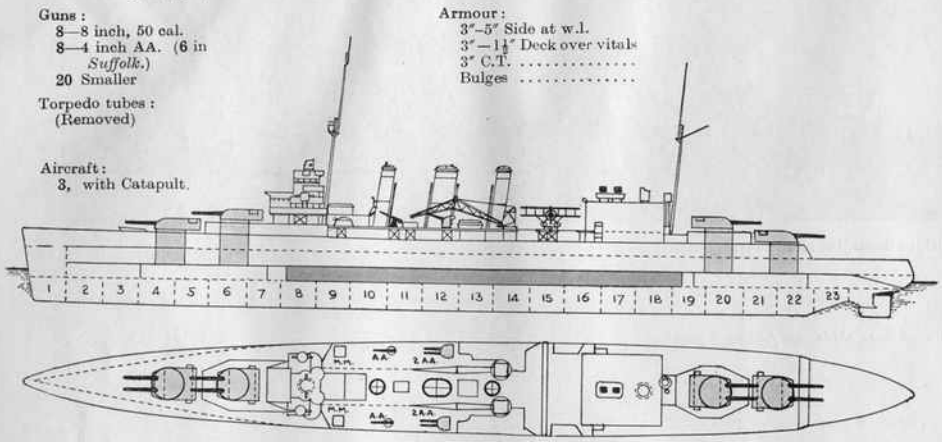
Length (*p.p.*) 590 feet, (*o.a.*) 630 feet. Beam, 68½ feet. Draught, 16¼ feet (*mean*)

Guns:
8—8 inch, 50 cal.
8—4 inch AA. (6 in *Suffolk*.)
20 Smaller

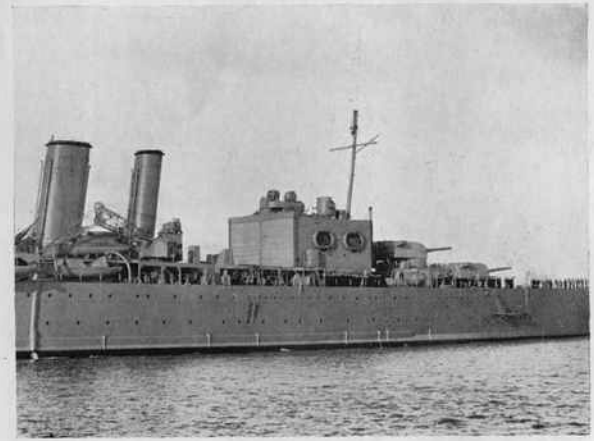
Torpedo tubes:
(Removed)

Aircraft:
3, with Catapult.

Armour:
3"–5" Side at w.l.
3"—1½" Deck over vitals
3" C.T. .....
Bulges .....



Note to Plan.—This represents *Cumberland* and *Suffolk*; others vary as in photos, and plan of *Australia*, on a later page



CORNWALL (BERWICK similar). 1938, *Wright & Logan.*

Machinery: Geared turbines (see table). 4 shafts. Designed S.H.P. 80,000 = 31·5 kts. Boilers: 8 Admiralty 3-drum type, with superheaters. Oil fuel: 3400 tons. Radius at full speed, 2300 miles; at economical speed (11—14 kts.), 10,400 miles.

General Notes.—Built under 1924–25 Estimates; designed by Sir Eustace Tennyson d'Eyncourt. Although on paper these ships appear to be inferior to foreign Treaty cruisers, in practice they are superior in sea-going qualities and have accommodation and habitability which is not equalled by any other cruisers. In addition, a considerable amount of weight has been expended in structural strength and internal protection. No attempt has been made to attain the high speeds which have been recorded by the *Tourville* and *Trento* types, the ideal aimed at being the ability to sustain the designed speed indefinitely and in all weathers, without exceeding the normal H.P. Actually over 34 knots has been maintained in service without in any way pressing the boilers. Two ships of the class, *Australia* and *Canberra*, were built for the Royal Australian Navy. Average cost is £1,970,000.

Gunnery Notes.—Exceptional elevation has been given to 8 inch guns, more than 65° having been observed. By means of an improved ammunition supply a rate of fire of four rounds per gun per minute can be maintained under director control. 8 inch broadside weighs 2,048 lbs. Total cost of armament £709,000; of firing a single broadside £408.

Armour Notes.—No side armour was included in original design, protection being afforded by a 3"—1½" deck. External bulges are fitted and the internal subdivision is particularly well planned.

Engineering Notes.—Boiler pressure is 250 lbs.

Appearance Notes.—Mainmast stepped further forward than in *London* class S.L. positions also differ. *Kent* has a sternwalk.

Special Note.—All this class were reconstructed during 1935–38. Main alterations include the provision of a large hangar and additional aircraft, increased armour protection and modernisation of the anti-aircraft armament. To compensate for the additional weight so imposed, the *Cumberland* and *Suffolk* were cut down by one deck abaft the mainmast. This was not done in the *Cornwall* and *Berwick*. *Kent* alone of this class is without the large hangar so conspicuous in others.

Name	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*	*Trials*	*Turbines*
Berwick	Fairfield	Fairfield	1924	15/9/24	2/2/28	81,700 = 32·5 (average of results)	Brown-Curtis
Cornwall	Devonport Y.	Beardmore		9/10/24	2/28		Parsons
Cumberland	Vickers	Vickers		18/10/24	1/28		Parsons
Kent	Chatham Y.	Hawthorn		15/11/24	25/6/28		Parsons
Suffolk	Portsmouth Y.	Parsons		30/9/24	7/2/28		Parsons

(Fiji Class—13 Ships)

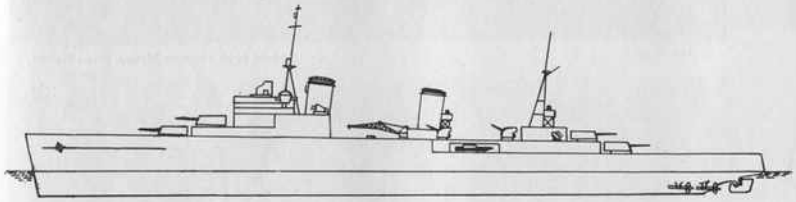
FIJI (May 31, 1939), **KENYA** (Aug. 18, 1939), **MAURITIUS** (July 19, 1939), **NIGERIA** (July 18, 1939), **TRINIDAD** (Oct. 14, 1939), **CEYLON, GAMBIA, JAMAICA, UGANDA** (all 1940) and 4 more (names not released).

Displacement : 8,000 tons.

Length : 549 feet. Beam : 62 feet. Draught : 16¼ feet.

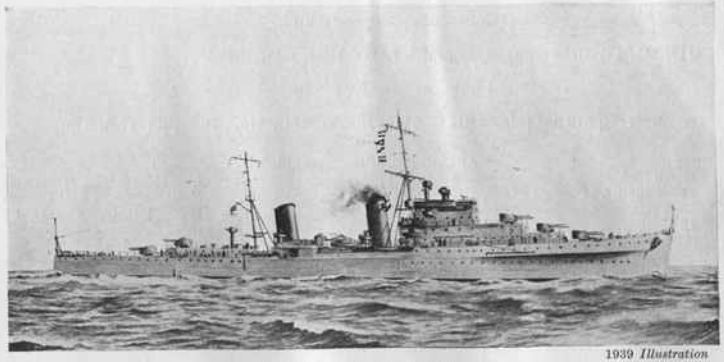
Guns :
12—6 inch.
8—4 inch AA.
16 smaller.

Aircraft : **3**, with **1** catapult.



Machinery : Parsons geared turbines. 4 shafts. Boilers : 8 Admiralty 3-drum type. [S.H.P. 72,500 = 33 kts.

Est.	Name	Builder	Machinery	Ordered	Begun	Completed
1937	*Fiji*	Clydebank	Clydebank	Dec., 1937	30/3/38	1940
	Kenya	Stephen	Stephen		18/6/38	
	Mauritius	Swan Hunter	Wallsend Slipway		31/3/38	
	Nigeria	V.-A., Tyne	Parsons		8/2/38	
	Trinidad	Devonport	Hawthorn Leslie		21/4/38	
1938	*Ceylon*	Stephen	Stephen	1939	1939	1942
	Gambia	Swan Hunter	Wallsend Slipway			
	Jamaica	V.-A., Barrow	V.-A., Barrow			
	Uganda	V.-A., Tyne	Parsons			
1939	4 *Ships*	(Not advised)				



1939 *Illustration*

(Dido Class—10 Ships).

DIDO (July 18, 1939), **EURYALUS** (June 6, 1939), **NAIAD** (Feb. 3, 1939), **PHOEBE** (March 25, 1939), **SIRIUS** (Nov., 1939), **BONAVENTURE** (April 19, 1939), **HERMIONE** (May 18, 1939), **CHARYBDIS, CLEOPATRA, SCYLLA** (all 1940).

Displacement : 5,450 tons.

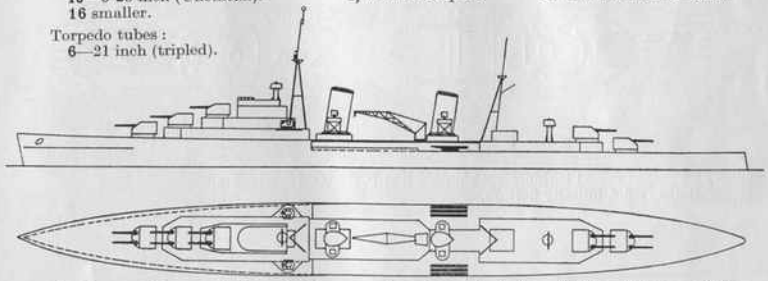
Length : 506 feet. Beam : 51½ feet. Draught : 14 feet.

Guns :
10—5·25 inch (Unofficial).
16 smaller.

Torpedo tubes :
6—21 inch (tripled).

Aircraft :
1, with **1** catapult.

Armour :
Similar to *Arethusa* class.



Machinery : Parsons single reduction geared turbines. 4 shafts. S.H.P. : 62,000 = 33 kts. Boilers : Admiralty 3-drum type, working pressure 400 lbs.

Est.	Name	Builder	Machinery	Ordered	Begun	Completed
1936	*Dido*	Cammell Laird	Cammell Laird	21/8/37	20/10/37	1940
	Euryalus	Chatham	Hawthorn		21/10/37	
	Naiad	Hawthorn	Hawthorn		26/8/37	
	Phoebe	Fairfield	Fairfield		2/9/37	
	Sirius	Portsmouth	Scotts		6/4/38	
1937	*Bonaventure*	Scotts	Scotts		30/8/37	
	Hermione	Stephen	Stephen		6/10/37	
1938	*Charybdis*	Cammell Laird	Cammell Laird	18/8/38	9/11/38	1941
	Cleopatra	Hawthorn	Hawthorn		5/1/39	
	Scylla	Scotts	Scotts		19/4/39	

(Edinburgh Class—2 Ships.)

EDINBURGH (March 31, 1938), BELFAST (March 17, 1938.)

Displacement: 10,000 tons.

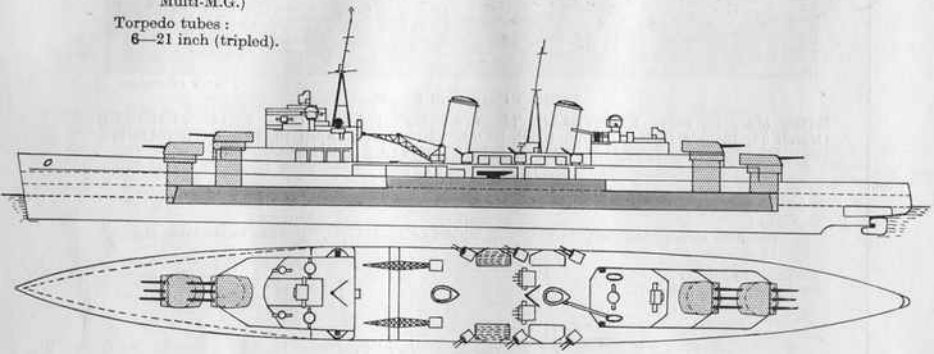
Length: (*pp.*) 579 feet; (*o.a.*) 613 ft. 6 in. Beam: 63 ft. 4 in. Draught: 17 ft. 3 in.

Guns:
12—6 inch.
12—4 inch AA.
4—3 pdr.
16 smaller.
(includes 2 Multiple pompoms and 2 Multi-M.G.)

Aircraft: **4**, with **1** catapult.

Armour:
3″—4½″ side. Otherwise similar to *Southampton* type, but believed to be more extensive (see Notes).

Torpedo tubes:
6—21 inch (tripled).

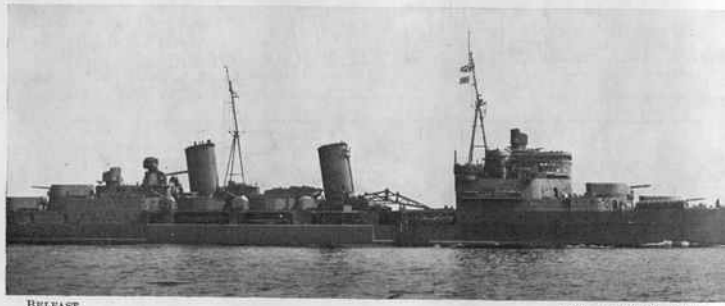


Machinery: Parsons geared turbines. 4 shafts. S.H.P.: 80,000 = 32·5 kts.
Boilers: 8 Admiralty 3-drum.

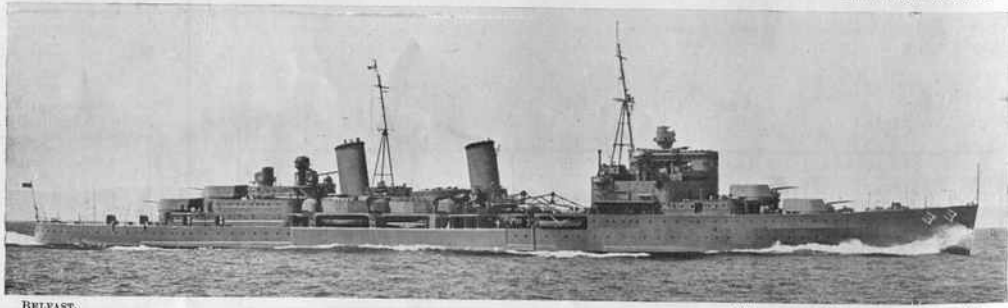
Est.	Name	Builder	Machinery	Ordered	Begun	Completed
1936	*Edinburgh*	Swan Hunter	Wallsend Slipway	15/8/36	29/12/36	1939
	Belfast	Harland & Wolff	Harland & Wolff	15/8/36	10/12/36	

Notes.—These two ships are reported to be very well protected, being designed (it is said) to withstand 8-inch shell fire. Internal subdivision is exceptionally complete.

Edinburgh. *Added 1940, courtesy Messrs. Swan Hunter.*



Belfast. *1939, Wright & Logan.*



Belfast. *1939, courtesy Messrs. Harland & Wolff*

(Southampton Class—8 Ships).

SOUTHAMPTON (ex-*Polyphemus*) (March 10, 1936),
NEWCASTLE (ex-*Minotaur*) (Jan. 23, 1936),
SHEFFIELD (July 23, 1936),
BIRMINGHAM (Sept. 1, 1936),
GLASGOW (June 20, 1936),
GLOUCESTER (Oct. 19, 1937),
LIVERPOOL (March 24, 1937),
MANCHESTER (April 12, 1937),

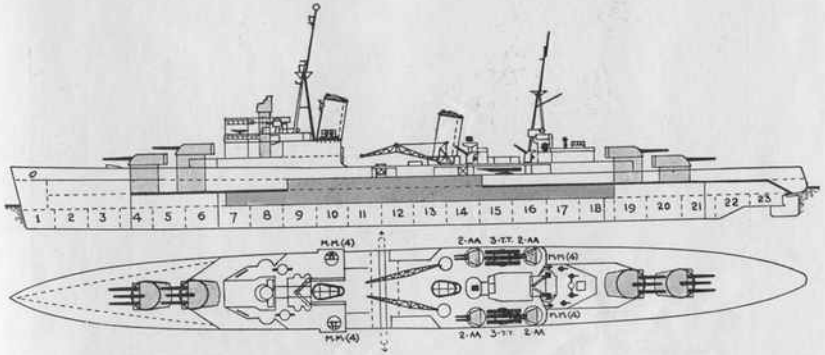
Displacement: 9,100 tons (Last 3: 9,400 tons). Complement: 700. Length: (*pp.*) 558, (*w.l.*) 584 ft., (*o.a.*) 591 ft. 6 in. Beam: 61 ft. 8 in. (last 3: 62 ft. 4 in.). Draught: 17 ft. (*mean*), except last 3 ships, 17 ft. 5 in. All are 20 ft. (*maximum*).

Guns:
12—6 inch
8—4 inch AA.
1—3·7 inch howitzer.
4—3 pdr.
16 smaller.

Aircraft:
3, with 1 catapult.

Tubes:
6—21 inch (tripled).

Armour:
1"—2" Turrets.
4"—3" Side.
4" C.T.



Machinery: Parsons geared turbines. 4 shafts. S.H.P.: 75,000 = 32 kts. (Last 3: 82,500 = 32·3 kts.). Boilers: 8 Admiralty 3-drum. Oil fuel: 1,970 tons.

Southampton. 1937, *R. Perkins.*

(*Further photographs on following page*).

Gloucester. 1939 *R. Perkins.*

Est.	Name	Builder	Machinery	Ordered	Begun	Completed
1933	*Southampton*	Clydebank	Clydebank	1/6/34	21/11/34	6/3/37
	Newcastle	V-A., Tyne	V-A., Barrow	1/6/34	4/10/34	5/3/37
	Sheffield	Do.	Do.	17/12/34	31/1/35	25/8/37
1934	*Glasgow*	Scotts	Scotts	17/12/34	16/4/35	8/9/37
	Birmingham	Devonport	Clydebank	1/3/35	18/7/35	18/11/37
	Gloucester	Do.	Scotts	3/35	22/9/36	27/1/39
1935	*Liverpool*	Fairfield	Fairfield	3/35	17/2/36	25/10/38
	Manchester	Hawthorn	Hawthorn	3/35	28/3/36	4/8/38

Notes.—Built as a reply to the "*Mogami*" and "*Brooklyn*" classes, though the number of 6 inch guns is three less. Centre gun of each turret is mounted slightly further back than other two. Protection is somewhat better than in previous classes. Hangars form an extension aft of bridge structure, fore funnel being carried up between them. New type athwartship catapult mounted between funnels. Noteworthy features of these ships are the raking funnels and masts and the tripod masting.

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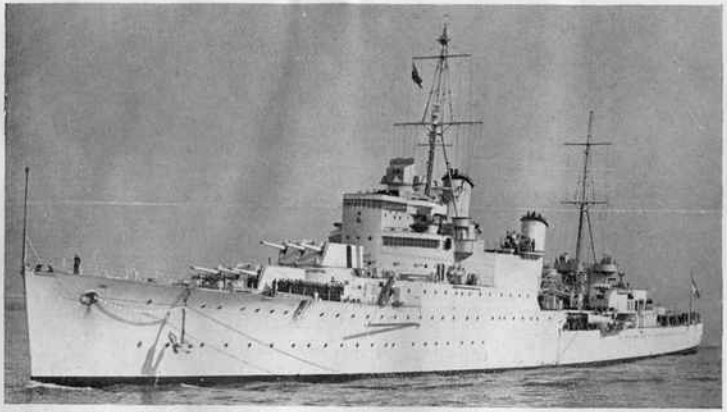
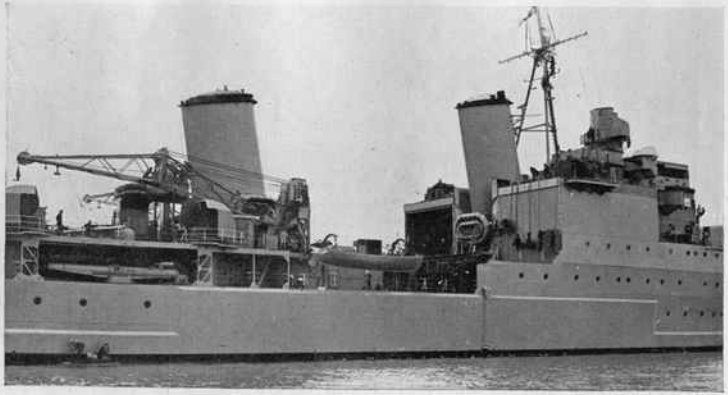
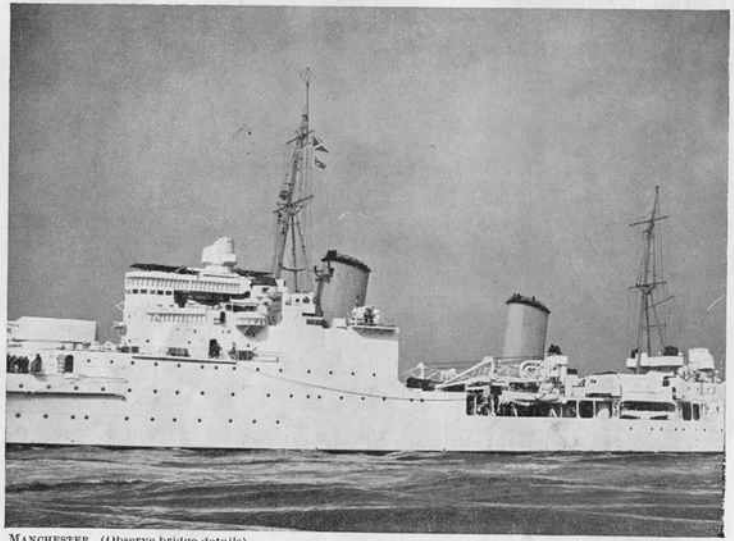


BIRMINGHAM (Bow differs from rest of class). 1938, *Grand Studio, Malta.*

LIVERPOOL. 1938, *" Fighting Ships "*



NEWCASTLE, with catapult extended. 1937, *R. Perkins.*



MANCHESTER. (Observe bridge details). 1938, *Wright & Logan.*

(For particulars of all these ships, see preceding page.)

(Arethusa Class.—2 Ships).

ARETHUSA (March 6th, 1934).

GALATEA (August 9th, 1934).

Displacement, 5,220 tons.

(Improved Arethusa Class—2 Ships).

PENELOPE (October 15th, 1935).

AURORA (August 20th, 1936).

Displacement, 5,270 tons.

Complement 450.

Length: (*p.p.*) 480 ft., (*w.l.*) 500 ft. Beam: 51 ft.

Draught: 13ft. 10in. (*mean*).

Guns:
6—6 inch.
8—4 inch AA.
2—3 pdr.
7 smaller guns.

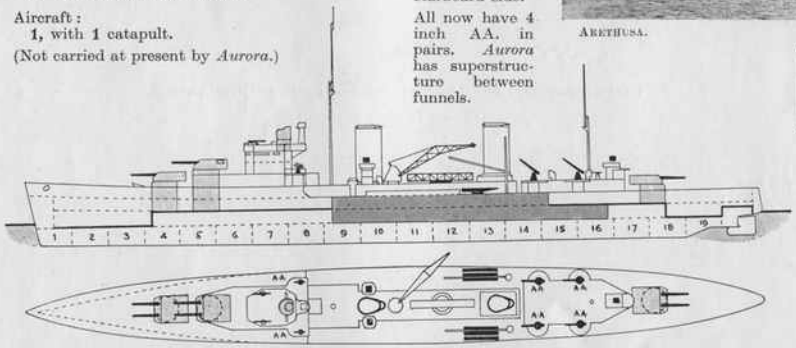
Armour:
1″ turrets
2″ side

Torpedo Tubes:
6—21 inch in Triple mounts.

Aircraft:
1, with 1 catapult.
(Not carried at present by *Aurora*.)

Note to Plan.—Only one derrick as completed, on starboard side.

All now have 4 inch AA. in pairs. *Aurora* has superstructure between funnels.



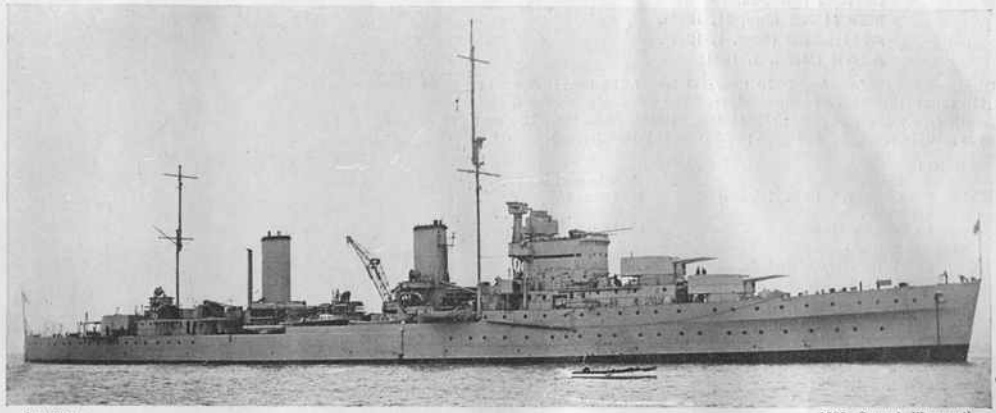
Machinery: Parsons geared Turbines. 4 shafts. S.H.P. 64,000=32·25 knots. Boilers: 4 Admiralty 3-drum type. Oil: 1,200 tons. Radius reported to be 12,000 miles at economical speed.

General Notes.—These ships may be said to bear the same relation to the *Leander* as the *York* class do to the *Kents*. Their tonnage is the minimum for oceangoing efficiency and the armament adequate to deal with likely convoy-raiders, bearing in mind that being relatively inexpensive they can be produced in numbers. The grouping of the AA. guns on the after superstructure instead of amidships should be noted, the multiple-mounts being on platforms below the bridge. Excepting for the two lifeboats all the boats are handled by the derrick, and the low bulwark amidships is to protect boats which are carried lower than in *Sydney* class. Funnels are stream-lined in order to take air current clear of aircraft between them.

Constructional Notes.—Weight reduction has been secured in these ships by the extensive use of electric welding for hull and internal subdivision, as well as by the employment of aluminium-covered plywood for cabin bulkheads and other light partitions, etc.

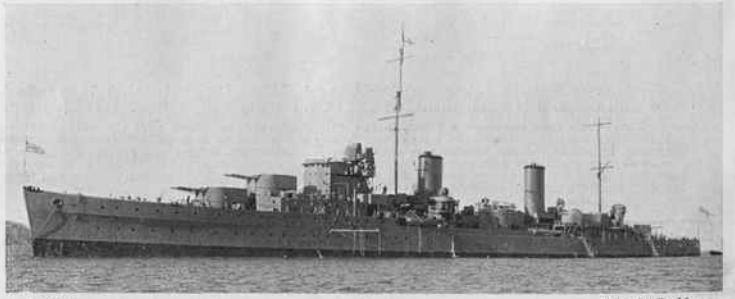
Engineering Notes.—A fluid flywheel enables power to be almost instantaneously switched over from main engines to cruising turbines. A reversion to two funnels is caused by the spacing of the boiler and engine rooms in two units, which obviates wholesale flooding of the boiler-rooms. Boiler temperature (with 300° superheat) is 650°.

Cost.—*Arethusa*, £1,251,161; *Galatea*, £1,210,733; *Penelope*, £1,290,787; *Aurora* £1,252,915.



Arethusa. 1935, *Seward, Weymouth.*

Est.	*Name*	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*
1931	*Arethusa*	Chatham	Parsons	1/9/32	25/1/33	Feb., 1935
1932	*Galatea*	Scotts	Scotts	21/2/33	2/6/33	Aug., 1935
1933	*Penelope*	Harland & Wolff	Harland & Wolff	8/3/34	30/5/34	Nov., 1936
1934	*Aurora*	Portsmouth	Wallsend	1/3/35	23/7/35	Nov., 1937



Aurora. 1938, *R. Perkins.*

(Leander Class—5 Ships.)

LEANDER (September 24, 1931).
ORION (Nov. 24, 1932).
NEPTUNE (Jan. 31, 1933).
ACHILLES (Sept. 1, 1932).
AJAX (March 1, 1934).

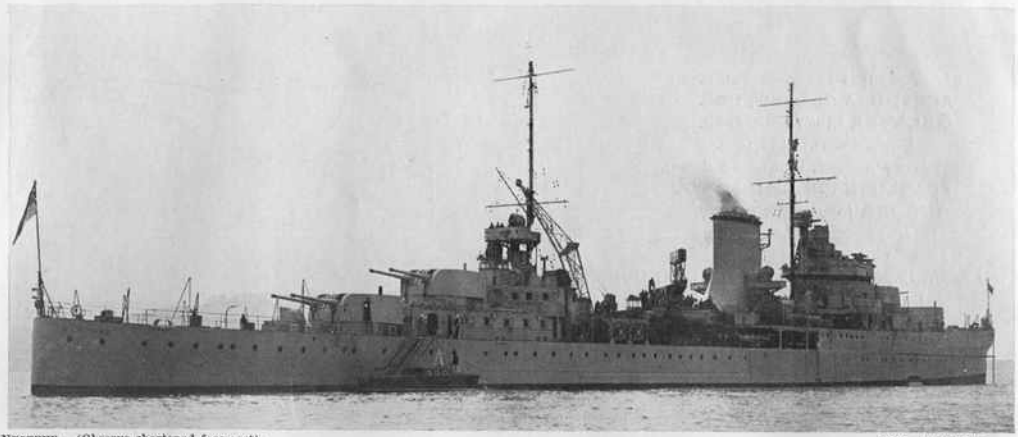
Displacement: *Leander*, 7,270 tons; *Orion*, 7,215 tons; *Neptune* 7,175 tons: *Achilles*. 7,030 tons; *Ajax*, 6,985 tons. Complement, 550.
Length (*p.p.*) 530 feet; (*o.a.*) 554½ feet. Beam, 55ft. 2in. Draught (*mean*) 16 feet. *Ajax*, 522 (*p.p.*) × 55⅓ × 15½ feet (*mean*).

Guns:
8—6 inch.
8—4 inch AA. (4 in *Achilles*)
4—3 pdr.
10 Smaller Guns.

Torpedo Tubes:
8—21 inch (quadrupled).

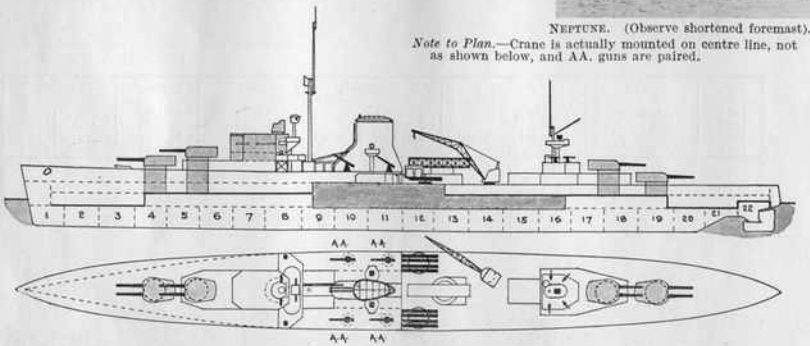
Aircraft:
Leander, *Achilles*, 1, *Orion*, *Neptune*, *Ajax*, 2.
(1 catapult in all).

Armour:
2"—4" Side amidships.
1" Turrets.
1" Bridge.
2" Deck.



NEPTUNE. (Observe shortened foremast). 1937 *R. Perkins*

Note to Plan.—Crane is actually mounted on centre line, not as shown below, and AA. guns are paired.



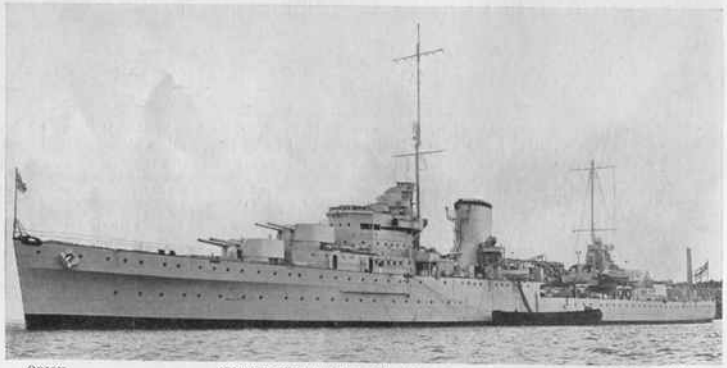
Machinery: Parsons I.R. geared Turbines. 4 shafts. Designed S.H.P. 72,000=32·5 kts. (made with designed H.P. on trials). Boilers: 4 Admiralty 3-drum type. Oil: 1,800 tons.

General Notes.—This class represents a return to moderate dimensions, compared with the thirteen ships of the 10,000 ton Treaty type. The eight guns in four turrets is a disposition of armament which is regarded by the gunnery branch as the best number and arrangement for satisfactory control, and superior in practice to nine guns in triple mountings as in the German *Köln* class. The 6 inch guns are of an entirely new model produced by the "auto-frettage" system instead of being wire wound. Forecastle plating extended aft and boats raised a deck since trials. Cost £1,500,000 to £1,600,000 apiece (*Ajax*, £1,480,097).

Est.	*Name*	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*
1929	*Leander*	Devonport	Vickers-Armstrongs	18/2/30	8/9/30	23/3/33
1930	*Orion*	Do.	Do.	26/3/31	26/9/31	16/1/34
	Neptune	Portsmouth	Parsons	2/3/31	24/9/31	22/2/34
	Achilles	Cammell Laird	Cammell Laird	3/31	11/6/31	10/10/33
1931	*Ajax*	Vickers-Armstrongs	Vickers-Armstrongs	1/10/32	7/2/33	3/6/35

NOTE.—*Achilles* and *Leander* lent to Dominion of New Zealand.

(Photos in that section.)



ORION. (Observe extended forecastle plating.) 1937, *R. Perkins*.

EMERALD (19th May, 1920).

ENTERPRISE (23rd December, 1919).

Displacement, 7,550 and 7,580 tons, respectively.
(*Full load*, over 9,000 tons.)

Complement, 572.

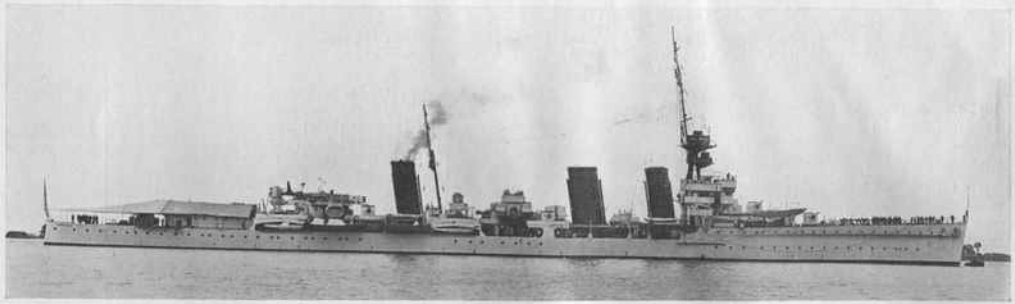
Length { *p.p.* 535 feet / *o.a.* 570 feet } Beam 54½ feet. Draught { *mean* 16½ feet. / *max.* feet.

Guns:
7—6 inch, 50 cal.
5—4 inch AA.
4—3 pdr.
9 smaller.

Torpedo tubes (21 inch):
16, quadrupled, *above water*.

Aircraft:
1 with catapult.

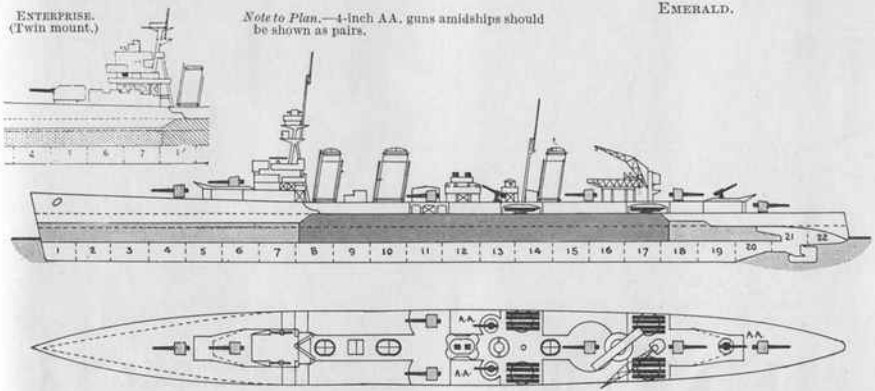
Armour (H.T.):
3″ Side (amidships).
2½″—1½″ Side (bow).
2″ Side (stern).
1″ Upper Deck (amidships).
1″ Deck (over rudder).



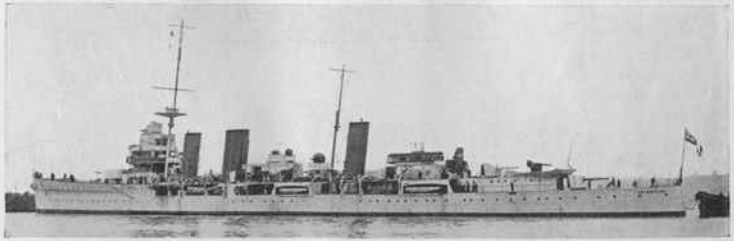
EMERALD. 1934 *Official Photo.*

ENTERPRISE. (Twin mount.)

Note to Plan.—4-inch AA. guns amidships should be shown as pairs.



Appearance Notes—Main differences are indicated in plan.



ENTERPRISE. 1936, *Medway Studios.*

Machinery: Turbines, 4 sets Brown-Curtis (geared). 4 shafts. Designed S.H.P. 80,000 = 33 kts. (light), 32 kts. (*full load*). Boilers: 8 Yarrow small tube. Fuel (oil only): *normal*, 650 tons; *maximum*, 1,746 tons.

Gunnery Notes.—Elevation of 6 inch, up to 40°. Heavy Director on foremast. R.F. on forward bridge.

Engineering Notes.—8 boilers in 4 w.t. compartments, part forward of amidships magazines and part abaft forward engine-room. This arrangement of boiler rooms is responsible for the somewhat unusual spacing of the funnels. On a full power trial in 1939, *Emerald* is reported to have exceeded 32 knots.

General Notes.—Begun under Emergency War Programme. A third ship, *Euphrates*, ordered from Fairfield Co., cancelled. They were designed early in 1918, to have a speed equal to that of any of the German Light Cruisers then existing or likely to be built. Cost of these ships was £1,617,062 for *Emerald* and £1,752,867 for *Enterprise*. Both ships refitted, 1934-36.

Name	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*	*Trials: H.P. kts.*	*Turbines*
Emerald	*Armstrong	Wallsend	7/3/18	Sept. 23/18	Jan. 14/26	80450 = 32·9	Brown-Curtis
Enterprise	†Clydebank	Clydebank	7/3/18	June 28/18	Jan., '26	(*Enterprise* not tried).	Brown-Curtis

*Towed to Chatham D.Y. †Devonport D.Y. for completion.

(Hawkins Class—2 Ships.)

FROBISHER (20th March, 1920), **HAWKINS** (1st Oct., 1917)

All fitted as Flagships.

Displacement, 9,860 and 9,800 tons, respectively.

Complement, 712/749.

Length { *p.p.* 565 feet / *o.a.* 605 „ } Beam { *w.l.* 58* feet / outside bulges 65 „ } Draught { *mean* 17½ feet. / *max.* 20½ „ }

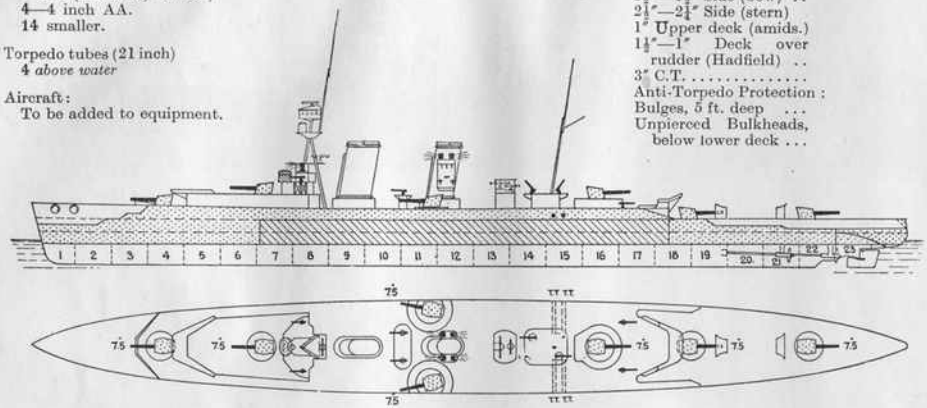
*Approximate.

Guns:
(Originally) 7—7·5 inch, 45 cal. (*Hawkins*, 50 cal.)
4—4 inch AA.
14 smaller.

Torpedo tubes (21 inch)
4 *above water*

Aircraft:
To be added to equipment.

Armour (H.T. or Nickel):
3″—2″ Side (amidships)
2½″—1½″ Side (bow) ..
2½″—2¼″ Side (stern)
1″ Upper deck (amids.)
1½″—1″ Deck over rudder (Hadfield) ..
3″ C.T. .....
Anti-Torpedo Protection:
Bulges, 5 ft. deep ...
Unpierced Bulkheads, below lower deck ...



No recent photos available.

Machinery: Turbines, Brown-Curtis or Parsons (geared cruising). Designed S.H.P. in *Hawkins*, 55,000 = 29·5 kts. *Frobisher*, 65,000 = 30·5 kts. 4 shafts. Boilers: 10 Yarrow (small tube) except *Hawkins*, 8. Fuel: as completed, 1,000 tons oil *normal*, 2,150 *maximum*. *Hawkins*, as re-constructed, 2,600 tons *maximum*. (Ships were originally intended to burn coal.)

Note.—The *Vindictive*, another ship of this class, has been demilitarised for use as a training ship, and will be found on a later page. *Raleigh*, of same type, was lost in August, 1922. *Effingham* wrecked in May, 1940.

Name	*Builder*	*Machinery*	*Begun*	*Completed*	*Turbines*
Frobisher	Devonport D.Y.	Wallsend	2 Aug., '16	20 Sept. '24	Brown-Curtis
Hawkins	Chatham D.Y.	Parsons	June, '16	July 25, '19	Parsons

("D" Class—8 Ships.)

DESPATCH (24th Sept., 1919), **DIOMEDE** (29th April, 1919),
DELHI (23rd Aug., 1918), **DUNEDIN** (19th Nov., 1918),
DURBAN (29th May, 1919), **DANAE** (26th Jan., 1918),
DAUNTLESS (10th April, 1918), **DRAGON** (29th Dec., 1917).

Displacement, 4,850 tons.

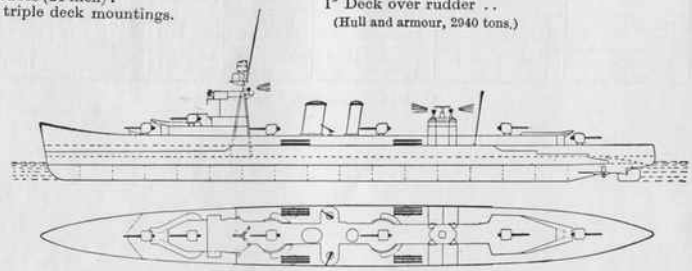
Length { *p.p.* 445 feet; *w.l.* 465½ ,, ; *o.a.* 472½ ,, } Beam, 46½ ft. Draught { *mean* 14½ ft. ; *max.* 16½ ft.

Complements of all, 450/469. All except first two fitted as Flagships.

Guns:
6—6 inch, 50 cal.
3—4 inch AA.
4—3 pdr.
11 to 13 smaller.

Torpedo tubes (21 inch):
12 in 4 triple deck mountings.

Armour (H.T.):
3″ Side (amidships) ...
2″, 1¾″, 1½″ Side (bow and stern) .....
1″ Upper deck (amids.)
1″ Deck over rudder ..
(Hull and armour, 2940 tons.)



Machinery: Turbines (all-geared), Brown-Curtis or Parsons types. Designed S.H.P. 40,000 = 29 kts. 2 shafts. Boilers: 6 Yarrow (small tube). Oil fuel only: *normal*, 300 tons; *maximum*, 1,050 tons. Machinery and engineering stores = 945 tons.

Name	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*	*Trials: H.P. kts.*	*Turbines*
Diomede	Vickers*	Vickers	Mar., 1918	June, 1918	24 Apr, 1922		Parsons
Despatch	Fairfield*	Fairfield	Mar., 1918	July, 1918	2 June, 1922		Brown-Curtis
Delhi	Armstrong	Wallsend	Sept., 1917	29 Oct., '17	June, 1919	41,381 = 28·5†	Brown-Curtis
Durban	Scotts*	Scotts	Sept., 1917	Jan., 1918	1 Sept. 1921	41,026 =	Brown-Curtis
Danae	Armstrong	Wallsend	Sept., 1916	Dec., 1916	July, 1918	40,463 =	Brown Curtis
Dauntless	Palmer	Palmer	Sept., 1916	Jan., 1917	Dec., 1918	42,808 =	Parsons
Dragon	Scotts	Scotts	Sept., 1916	Jan., 1917	Aug., 1918	40,035 =	Brown-Curtis
Dunedin	Armstrong	Hawthorn	Sept., 1917	Nov., 1917	Oct., 1919	41,268 = 29·19	Brown-Curtis

*Towed to following Dockyards for completion: *Despatch* to Chatham. *Durban* to Devonport, *Diomede* to Portsmouth.
† With PVs. out, and on deep draught.

Dunedin. Diomede has her forward forecastle 6 inch in gunhouse. 1939, *Wright & Logan.*

Dauntless. (Danae, Dragon similar.) 1928 *Photo, Cribb.*

General Notes.—Emergency War Programme ships. Note that first three were ordered *before Carlisle* class. Design generally as *Ceres* class, but lengthened *about* 20 feet, to add a sixth 6-inch between foremast and first funnel; also triple tubes. Cost of *Delhi*, £840,182. Heavy director on foremast. *Dunedin* and *Diomede*, both served in New Zealand Division for over ten years. *Dauntless* badly damaged by grounding off Halifax Nova Scotia, July, 1928, and completely refitted 1929-30. *Danae*, *Delhi*, *Dragon*, all refitted 1929-30.

Cancelled Ships.—*Daedalus*, *Daring*, *Desperate*, *Dryad* (all ordered March 1918).

BRITISH—Cruisers

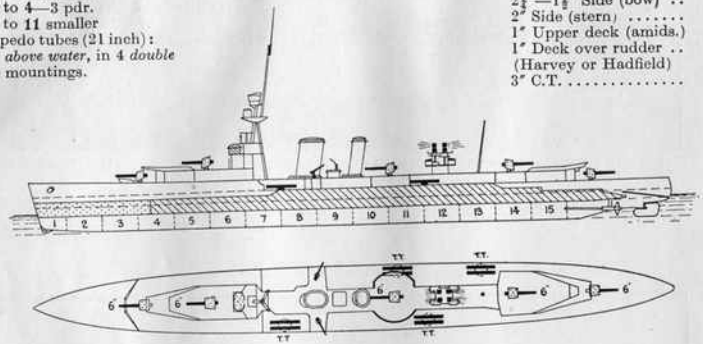
CAPETOWN* (28th June, 1919), **COLOMBO*** (18th Dec., 1918).
Displacement, 4200 tons.

CARDIFF (ex-*Caprice*) (April 12, 1917). **CERES** (March 24, 1917).
Displacement, 4290 tons. Complement, 400/437.
Length { *p.p.* 425 feet / *o.a.* 450 „ } Beam, 43½ feet. Draught { *mean* 14 feet 1 inch. / *max* 16¼ „

Guns :
5—6 inch, 50 cal.
2—3 inch AA.
2 to 4—3 pdr.
9 to 11 smaller
Torpedo tubes (21 inch) :
above water, in 4 *double* mountings.

*Fitted as Flagships.

Armour (H.T.) :
3″ Side (amidships) ...
2½″—1½″ Side (bow) ..
2″ Side (stern) .....
1″ Upper deck (amids.)
1″ Deck over rudder ..
(Harvey or Hadfield)
3″ C.T. .....



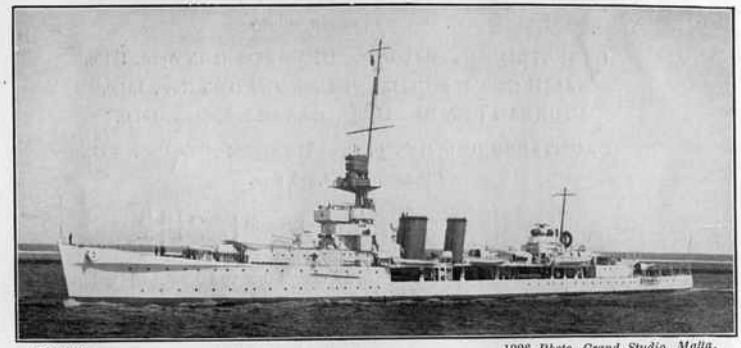
Machinery : Turbines (all-geared), see Table. 2 shafts in all. Designed S.H.P. 40,000 = 29 kts.
Boilers : Yarrow. Fuel (oil only) : 300 tons, *normal* ; *maximum*, 950 tons.

General Notes.—Emergency War Programme ships, ordered 1916–17. Very wet forward, to remedy which defect the later ships were given "trawler" bows. Heavy type director on foremast.

To distinguish : From "*D*" class Cruisers.—Absence of 6 inch between foremast and first funnel.

Special Note.

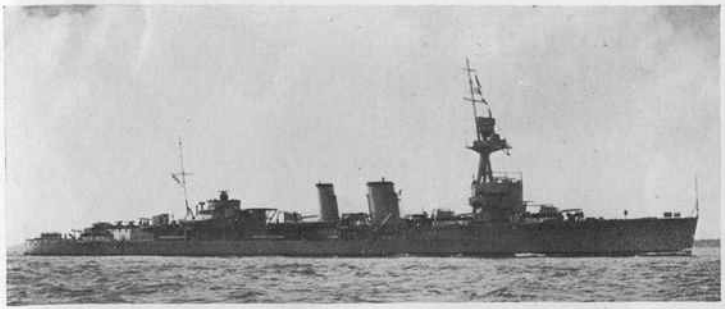
CAPETOWN and COLOMBO were to have been rearmed as Anti-Aircraft Ships, but whether this has been done has not been announced.



COLOMBO. 1926 *Photo, Grand Studio, Malta.*

Name	*Builder*	*Machinery*	*Begun*	*Completed*	*Trials H.P. kts.*	*Turbines*
Cardiff	Fairfield	Fairfield	July, 1916	July, 1917	41,450 = 28·96	B.-Curtis A.G.
Ceres	Clydebank	Clydebank	Apr. 26, 1916	June, 1917	39,425 = 29·1	B.-Curtis A.G.
Capetown	Cammell Laird*	Cammell Laird	23 Feb., '18	Feb., '19		Parsons
Colombo	Fairfield	Fairfield	Dec., 1917	June, '19		B.-Curtis

*Towed to Pembroke D.Y. for completion.



CALEDON

Added 1940, *Wright & Logan.*

(CALEDON CLASS—2 SHIPS.)

CALEDON* (Nov. 25, 1916), **CARADOC** (Dec. 23, 1916).

Displacement: 4,180 tons. Complement: 400/437.

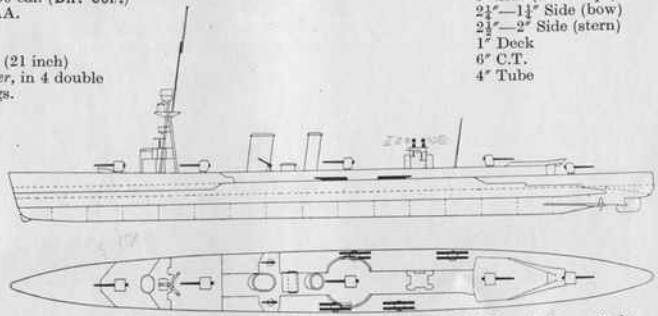
Length { *p.p.* 425 feet; *o.a.* 450 feet } Beam: 42¾ feet. Draught { *mean* 14 ft. 1 in.; *max.* 16½ feet.

* Fitted as Flagship.

Guns:
- 5—6 inch, 50 cal. (Dir. Con.)
- 2—3 inch AA.
- 4—3 pdr.
- 11 smaller

Torpedo tube (21 inch)
- 8 *above water*, in 4 double mountings.

Armour: (H.T.)
- 3″ Side (amidships)
- 2¼″—1½″ Side (bow)
- 2½″—2″ Side (stern)
- 1″ Deck
- 6″ C.T.
- 4″ Tube



Machinery: Turbines (all-geared), Parsons. 2 screws. Designed S.H.P.: 40,000 = 29 kts. Boilers: 8 Yarrow. Oil fuel: *normal*, 300 tons; *maximum*, 935 tons.

Gunnery Notes.—Mark of 6-inch gun introduced in this class and mounted in later Cruisers has about 40° elevation. Heavy type Director.

Name	*Builder*	*Machinery*	*Begun*	*Completed*	*Trials H.P. kts.*
Caledon	Cammell Laird	Cammell Laird	17/3/16	3/17	47 887 = 29
Caradoc	Scotts	Scotts	2/16	6/17	41,196 = 29

General Notes.—Emergency War Programme. When new, they could make 29–30 kts. Are very wet forward, the fo'sle 6 inch being almost unfightable in a head sea. *Cassandra*, of this class, built by Messrs. Hawthorn Leslie, lost in Baltic by mine, soon after Armistice was signed; and *Calypso* (same builders) was torpedoed in June, 1940. *Caledon* refitted 1926–27, *Caradoc* 1927–28.

COVENTRY.

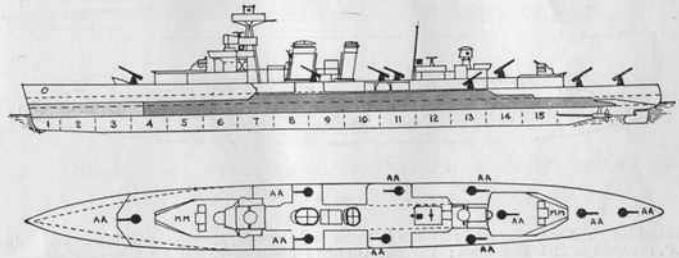
1936, *Wright & Logan.*

COVENTRY (ex-*Corsair*), (July 6, 1917).

Displacement, 4,290 tons. Complement, 400. Length (*p.p.*) 425 feet; (*o.a.*) 450 feet. Beam, 43½ feet. Draught, *mean* 14 feet 1 inch; *max.* 16¼ feet.

Guns
- 10—4 inch AA.
- 1—multiple pompom
- 10 smaller

Armour:
- 3″ Side (amidships)
- 2¼″—1½″ Side (bow)
- 2″ Side (stern)
- 1″ Deck
- 3″ C.T.



Machinery: Brown-Curtis geared turbines. 2 shafts. Designed S.H.P.: 40,000 = 29 kts. Boilers: Yarrow. Oil fuel: 300 tons *normal*; 950 tons *maximum*.

Notes.—*Coventry* was laid down by Messrs. Swan Hunter at Wallsend in August, 1916, and completed in Feb., 1918. Originally a sister ship of *Ceres* and *Cardiff*, she was reconstructed and rearmed as an anti-aircraft ship in 1935. This was also the case with the *Curlew*, of same type, lost in May, 1940.

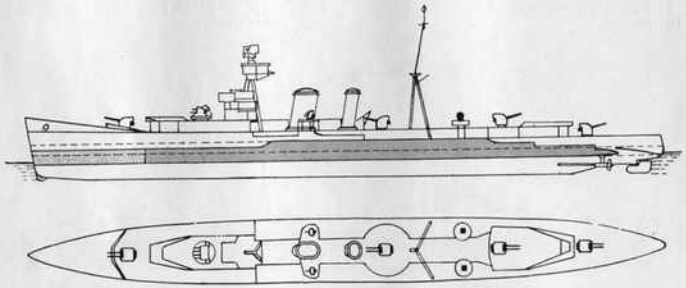
CAIRO (Nov. 19, 1918), **CALCUTTA** (July 9, 1918), **CARLISLE** (July 9, 1918), **CURACOA** (May 5, 1917).

Displacement : 4,200 tons (except *Curacoa*, 4,290 tons). Complement, 400.

Length (*pp.*) 425 feet ; (*o.a.*) 450 feet. Beam, 43½ feet. Draught, 14 1/2 feet *mean* ; 16¼ feet *max.*

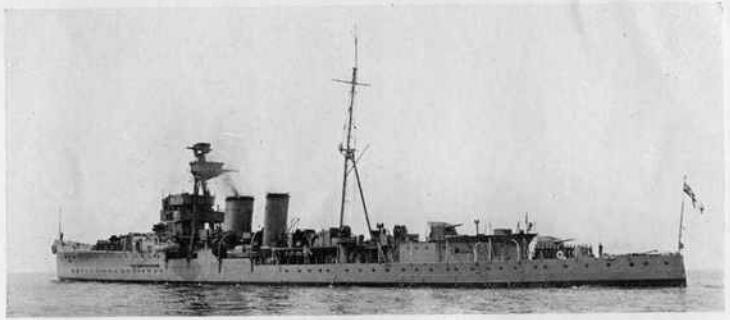
Guns :
8—4 inch AA.
1 multiple pompom
Several smaller.

Armour :
3″ Side (amidships)
2½″—1½″ Side (ends)
1″ Deck
3″ C.T.



Machinery : Parsons geared turbines in *Cairo* and *Calcutta*, Brown-Curtis in others. 2 shafts S.H.P. : 40,000 = 29 kts. Boilers : Yarrow. Oil fuel : 300 tons *normal*, 950 tons *maximum*.

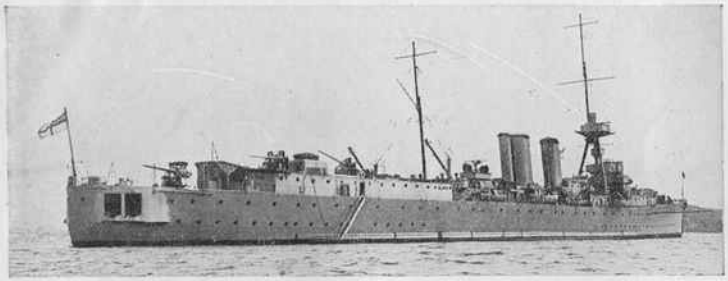
Notes.—These ex-cruisers were all converted into Anti-Aircraft Ships in 1939.



CAIRO. 1939 *Wright & Logan.*

CAIRO. 1939 *Wright & Logan.*

Name.	*Builder.*	*Machinery.*	*Begun.*	*Completed.*
Cairo	Cammell Laird	Cammell Laird	28/11/17	24/9/19
Calcutta	Vickers	Vickers	10/17	21/8/19
Carlisle	Fairfield	Fairfield	10/17	11/11/18
Curacoa	Pembroke D.Y.	Harland & Wolff	7/16	2/18



Showing alteration to Stern. 1932 *Photo, R. Perkins.*

(Special "Cruiser-Minelayer" Type—1 Ship.)

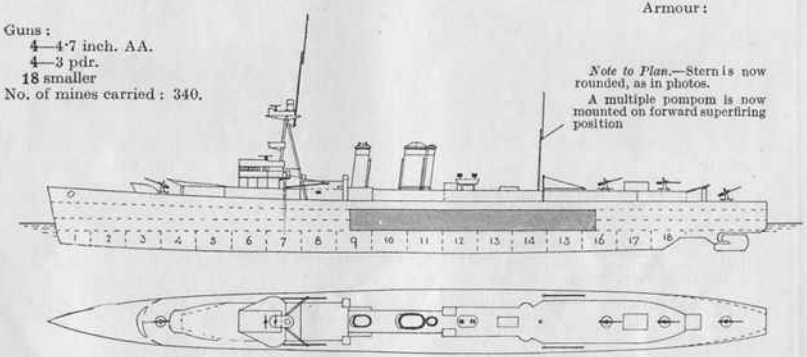
ADVENTURE (18th June, 1924).

"Standard" displacement, 6,740 tons. Complement, 400

Length { *p.p.*, 500 feet / *o.a.*, 520 feet } Beam, 59 feet, (over bulges) Draught *mean*, 19¼ feet.

Armour:

Guns:
4—4·7 inch. AA.
4—3 pdr.
18 smaller
No. of mines carried: 340.



Machinery: Parsons geared turbines, with Diesel engines and electric drive for cruising purposes. 4 shafts. Designed S.H.P. 40,000 = 28 kts. Boilers: Admiralty 3-drum type. Fuel (oil only): 1550 tons.

Notes.—Laid down at Devonport, Nov. 1922, and completed May, 1927. Originally had flat stern, which was rebuilt to present shape in 1932. Refitted 1939.

1937, *B. R. Goodfellow, Esq.* (*added* 1938).

(Latona Class—4 Ships.)

Completing.

ABDIEL (1940), **LATONA** (1940), **MANXMAN** (1940), **WELSHMAN** (1940).

Displacement: 2,650 tons.

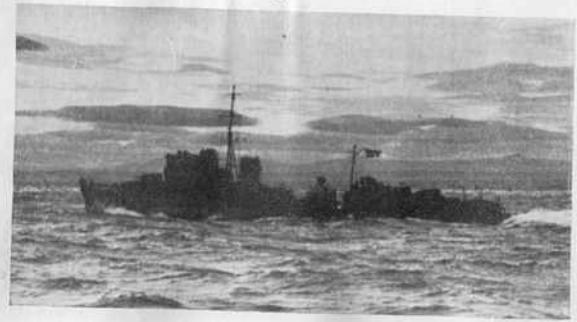
Length: 410 feet. Beam: Draught:

Guns:
6—4·7 inch.
Several smaller.

Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 72,000 = 40 kts. Boilers: Admiralty 3-drum type.

Notes.—First 3 laid down under 1938 Programme, *Welshman* under that for 1939.

Name.	*Builder.*	*Ordered.*	*Begun.*	*Completed.*
Abdiel	Stephen	23/12/38	/39	1940-41
Latona	Thornycroft		4/4/39	
Manxman	White		/39	
Welshman	Hawthorn	21/3/39	/39	



("HUNT" CLASS.) 1940.

2 *Cammell Laird :* **ATHERSTONE, BERKELEY.**
4 *Yarrow :* **CATTISTOCK, CLEVELAND, COTSWOLD, COTTESMORE.**
2 *Vickers-Armstrongs (Tyne) :* **EGLINTON, EXMOOR.**
2 *Clydebank :* **FERNIE, GARTH.**
4 *Swan Hunter :* **HAMBLEDON, HOLDERNESS, MENDIP, MEYNELL.**
2 *Scotts :* **PYTCHLEY, QUANTOCK.**
2 *White :* **QUORN, SOUTHDOWN.**
2 *Stephen :* **TYNEDALE, WHADDON.**

All laid down 1939, under Programme for that year, and completed 1940.
Displacement : 904 tons. Dimensions : 272¼ × 28¼ × 7¾ feet. Guns : 4—4 inch AA., 8 smaller. Machinery : Parsons geared turbines (by Wallsend Slipway in Swan Hunter units). 2 shafts. S.H.P. : 19,000 = 32·5 kts. Boiler : Admiralty 3-drum type.

Note.—No information concerning destroyers built under War construction programmes is available.

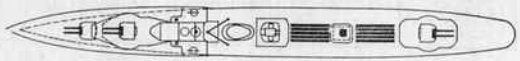
16 "Lightning" Class.

Will be of modified *Javelin* design.

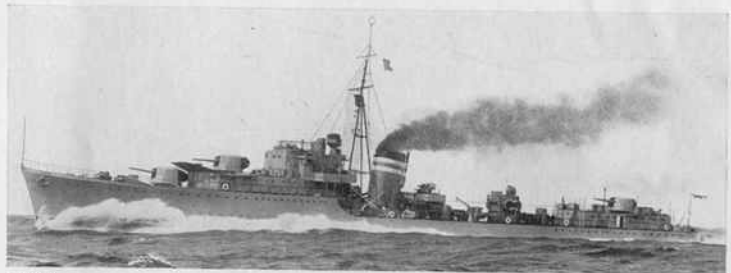
2 *Yarrow :* **Laforey** (LDR.), **Lance**
2 *Cammell Laird :* **Larne, Lively.**
2 *Hawthorn :* **Legion, Lightning.**
4 *Scotts :* **Lookout, Loyal, Milne** (LDR.), **Marksman.**
2 *Fairfield :* **Musketeer, Myrmidon.**
2 *Stephen :* **Matchless, Meteor.**
2 *Vickers-Armstrongs (Tyne) :* **Marne, Martin.**

Displacement : 1,920 tons, except *Laforey, Milne,* 1,935 tons. Dimensions : 354 × 37 × 10 feet. Guns : 6—4·7 inch, several smaller. Tubes : 8—21 inch. Machinery : Parsons geared turbines (by Parsons Co. in *Legion* and *Lightning*). S.H.P. : 48,000 = 36·5 kts. Boilers : 2 Admiralty 3-drum type.

Name	*Begun*	*Launch*	*Compl.*	*Name*	*Begun*	*Launch*	*Compl.*
Lance	10/38			*Legion*	11/38		
Larne	12/38		*To be*	*Lightning*	11/38		*To be*
Lively	12/38		1940	*Lookout*	11/38		1940
Laforey	11/38			*Loyal*	11/38		



24 "Javelin" Class



JERVIS. 1939, *courtesy Messrs. Hawthorn Leslie (Builders).*

JERSEY. 1939. *Wright & Logan.*

2 *Hawthorn :* **Jervis, Kelly,** (both LEADERS).
4 *Clydebank :* **Jackal, Javelin** (ex-*Kashmir*), **Nerissa, Nizam**
4 *Denny :* **Jaguar, Kandahar, Noble, Nonpareil.**
4 *Fairfield :* **Napier** (LEADER), **Juno, Kelvin, Nestor.**
2 *Swan Hunter :* **Janus, Khartoum.**
4 *Thornycroft :* **Kashmir** (ex-*Javelin*), **Kimberley, Norman, Norseman.**
2 *White :* **Jersey, Kingston.**
2 *Yarrow :* **Jupiter, Kipling.**

Displacement : 1,690 tons, except *Jervis, Kelly, Napier,* 1,695 tons. Complement : 183. Dimensions : 348 × 35 × 9 feet. Guns : 6—4·7 inch, 6 smaller. Tubes : 10—21 inch. Machinery : Parsons geared turbines. S.H.P. : 40,000 = 36 kts. Boilers : 2 Admiralty 3-drum type.

Est.	*Name*	*Begun*	*Launch*	*Compl.*
1936	*Jackal*	24/9/37	25/10/38	13/4/39
	Jaguar	11/37	22/11/38	/39
	Juno	5/10/37	8/12/38	24/8/39
	Janus	29/9/37	10/11/38	/39
	Kashmir	10/37	4/4/39	/39
	Jersey	28/9/37	26/9/38	28/4/39
	Jupiter	20/9/37	27/10/38	16/6/39
	Jervis	26/8/37	9/9/38	5/8/39
	Kelly		25/10/38	23/8/39

Est.	*Name*	*Begun*	*Launch*	*Compl.*
1937	*Javelin*	11/10/37	21/12/38	10/6/39
	Kandahar	1/38	21/3/39	1939
	Kelvin	5/10/37	19/1/39	
	Khartoum	27/10/37	6/2/39	
	Kimberley	1/38	1/6/39	
	Kingston	6/10/37	9/1/39	
	Kipling	20/10/37	19/1/39	

14 "Tribal" Class

COSSACK (now carries Pendant No. *F* 03). 1938, *courtesy Messrs. Vickers-Armstrongs Ltd.*

MOHAWK (Now carries Pendant No. *F* 31). 1938, *Wright & Logan.*

3 *Vickers-Armstrongs (Tyne)*: **Cossack** (Leader), ***Eskimo, Mashona.***

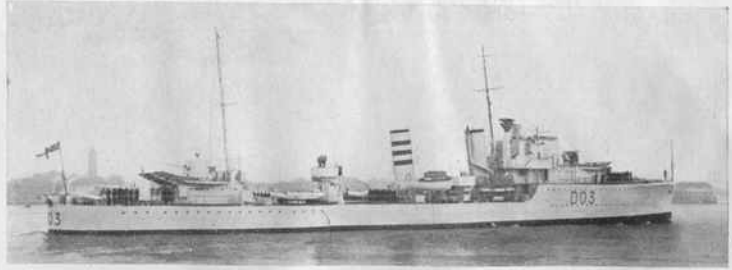
1 *Fairfield*: ***Maori.***
2 *Thornycroft*: ***Mohawk, Nubian.***
2 *Stephen*: ***Sikh, Zulu.***
2 *Scotts*: ***Matabele, Punjabi.***
2 *Denny*: ***Ashanti, Bedouin.***
2 *Swan Hunter*: ***Somali, Tartar.*** (both Ldrs.)

Displacement: 1,870 tons. Complement: 190 (as Leaders 219, or as Captain D., 226). Dimensions: 355½ × 36½ × 9 feet. Guns: 8—4·7 inch, 7 smaller. Tubes: 4—21 inch. Machinery: Parsons geared turbines (by Parsons Co. in *Eskimo* and *Mashona*; by Wallsend Co. in *Somali* and *Tartar*; and by V.-A., Barrow, in *Cossack*). S.H.P.: 44,000 = 36·5 kts. Boilers: 3 Admiralty 3-drum type. Cost averages just over £450,000 apiece.

Note.—Cossack, *Somali* and *Tartar* are fitted as Leaders, though not classed as such. They do not differ in appearance from others.

Est.	Name	Begun	Launch	Compl.
1935	*Cossack*	9/6/36	8/6/37	7/6/38
	Mohawk	16/7/36	5/10/37	7/9/38
	Nubian	10/8/36	21/12/37	6/12/38
	Zulu	10/8/36	23/9/37	7/9/38
	Maori	6/7/36	2/9/37	2/1/39
1936	*Sikh*	24/9/36	17/12/37	12/10/38
	Matabele	1/10/36	6/10/37	25/1/39
	Punjabi		18/12/37	29/3/39
	Ashanti	23/11/36	5/11/37	21/12/38
	Bedouin	1/37	21/12/37	15/3/39
	Eskimo	5/8/36	3/9/37	30/12/38
	Mashona			28/3/39
	Somali	26/8/36	24/8/37	12/12/38
	Tartar		21/10/37	10/3/39

6 "Intrepid" class



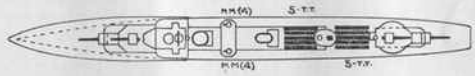
ICARUS. (Observe quintuple T.T. mounts). Height of funnels now reduced. 1937, *Wright & Logan.*

Programme 1935
2 *Clydebank*: ***Icarus, Ilex***
1 *Hawthorn Leslie*: ***Imperial***
2 *White*: ***Impulsive, Intrepid***
1 *Yarrow*: ***Isis***

Displacement: 1,370 tons. Complement: 145. Dimensions: 312 (*pp.*), 320 (*w.l.*) × 33 × 8¼ feet (*mean*). Guns: 4—4·7 inch, 6 smaller. Tubes: 10—21 inch. Machinery: Parsons geared turbines. S.H.P.: 34,000 = 36 kts. Boilers 3 Admiralty 3-drum type, working pressure 350 lbs. Cost averages just over £320,000 apiece.

Note.—All this class are fitted for minelaying.

Name	Begun	Launched	Completed	Name	Begun	Launched	Completed
Icarus	3/36	26/11/36	3/5/37	*Impulsive*	3/36	1/3/37	29/1/38
Ilex	3/36	28/1/37	7/7/37	*Intrepid*	1/36	17/12/36	29/7/37
Imperial	1/36	11/12/36	30/6/37	*Isis*	2/36	12/11/36	2/6/37



"I" *class.* ("G" and "H" *classes* as on a later page.)

ILEX (Height of funnels now reduced). 1938, *Grand Studio.*

BRITISH—Flotilla Leaders and Destroyers

10 "Hero" and 4 "Greyhound" classes.

HERO. Observe bridge and shortened funnels. 1939, *Wright & Logan.*

GREYHOUND. 1936, *Wright & Logan.*

1939 War Programme { 2 *Thornycroft:* / 2 *Vickers-Armstrongs:* / 1 *White:* } (Names not advised; all acquired from Brazil.) — Displacement, 1,340 tons.

Programme 1934 { 2 *Denny:* ***Hasty, Havock*** / 2 *Vickers-Armstrongs (Tyne):* ***Hereward, Hero*** / 1 *Scotts:* ***Hotspur*** } — Displacement, 1,340 tons.

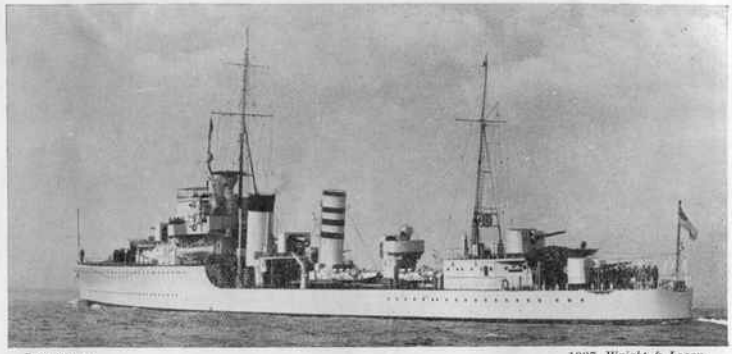
Programme 1933 { 1 *Stephen:* ***Gallant*** / 1 *Fairfield:* ***Garland*** / 2 *Vickers-Armstrongs (Barrow):* ***Greyhound, Griffin*** } — Displacement, 1,335 tons

Complement: 145. Dimensions: 312 (*pp.*), 320 (*w.l.*), 323 (*o.a.*) × 33 × 8¼ feet (*mean*). Guns: 4—4·7 inch, 6 smaller. Tubes: 8—21 inch. Machinery: Parsons geared turbines (by Parsons Co. in *Hereward* and *Hero:* by Wallsend Co. in *Hyperion*). S.H.P.: 34,000 = 36 kts. Boilers: 3 Admiralty 3-drum type. Oil fuel: 455 tons. Cost averages just over £300,000 apiece.

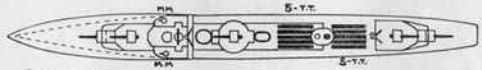
Name	*Begun*	*Launch*	*Comp.*
Gallant	15/9/34	26/9/35	25/2/36
Garland	22/8/34	24/10/35	3/3/36
Hasty	4/35	5/5/36	11/11/36
Havock ..	15/5/35	7/7/36	18/1/37
Hereward }	28/2/35	10/3/36	{ 9/12/36
Hero }			{ 23/10/36

Name	*Begun*	*Launch*	*Comp.*
Greyhound ..	20/9/34	15/8/35	31/1/36
Griffin	20/9/34	15/8/35	6/3/36
Hotspur ..	27/2/35	23/3/36	29/12/36
Hyperion ..	26/3/35	8 4/36	3/12/36

1 Admiralty Type Leader.



INGLEFIELD 1937, *Wright & Logan.*



INGLEFIELD.

1 *Cammell Laird:* ***Inglefield.***

Displacement: 1,530 tons. Complement: 175. Dimensions: 326 (*pp.*), 334 (*w.l.*) × 34 × 9 feet (*mean*). Guns: 5—4·7 inch, 6 smaller. Tubes: 10—21 inch (quintupled). Machinery: Parsons geared turbines. S.H.P.: 38,000 = 36·5 kts. Boilers: 4 Admiralty 3-drum (of the side-fired type), 300 lbs. working pressure. Oil fuel: 475 tons. Cost: £354,303.

Est.	*Name*	*Begun*	*Launch*	*Comp*
1935	*Inglefield*	29/4/36	15/10/36	25/6/37

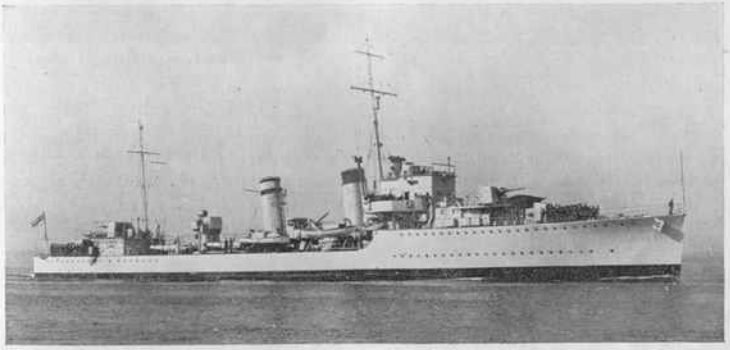
2 Admiralty Type Leaders.

FAULKNOR.

Added 1940, *Wright & Logan.*

1 *Yarrow:* ***Faulknor.***

Displacement: 1,400 tons. Complement: 175. Dimensions: 322 (*pp.*), 340 (*w.l.*) × 33¾ × 8½ feet (*mean*). Guns: 5—4·7 inch, 6 smaller. Tubes: 8—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P.: 38,000 = 36·75 kts. Boilers: 4 Admiralty 3-drum type, 300 lbs. working pressure. Oil fuel: 490 tons. Cost: £330,239.



Added 1940, *Wright & Logan.*

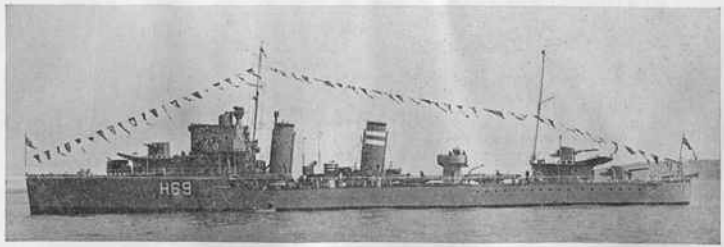
1 *Portsmouth Dockyard:* ***Duncan.***

Displacement: 1,400 tons. Dimensions: 317½ (*pp.*), 326 (*w.l.*) × 33 × 8¼ feet (*mean*). Guns: 4—4·7 inch, 6 smaller. Tubes: 8—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P.: 36,000 = 35·75 kts. Boilers: Admiralty 3-drum type, 300 lbs. working pressure. Oil fuel: 470 tons. Complement: 175.

Appearance Note.—Duncan differs mainly from B and D type destroyers in having taller foremast with crowsnest.

Est.	*Name*	*Begun*	*Launch*	*Comp.*
1930	*Duncan*	3/9/31	7/7/32	5/4/33
1932	*Faulknor*	31/7/33	12/6/34	24/5/35

6 "Eclipse" and 8 "Fearless" classes.



FOXHOUND (and others except *Express*, which has light tripod mainmast). 1935, *R. Perkins.*

Plan of "E," "F," "G" and "H" classes

Programme 1932
- 2 *Cammell Laird.* ***Fearless, Foresight.***
- 2 *Clydebank.* ***Foxhound, Fortune.***
- 2 *White.* ***Forester, Fury.***
- 2 *Vickers-Armstrongs (Tyne):* ***Fame, Firedrake.***

Programme 1931
- 2 *Denny.* ***Echo, Eclipse.***
- 1 *Scotts.* ***Escapade.***
- 1 *Swan Hunter.* ***Express.***
- 2 *Hawthorn Leslie.* ***Electra, Encounter.***

Displacement: 1,375 tons *Eclipse* class and *Fearless*; others, 1,350 tons.
Complement: 145.
Guns: 4—4·7 inch. 6 smaller.
Tubes: 8—21 inch. 2 D.C. Throwers.

Dimensions: 318½ (*p.p.*), 326 (*w.l.*), 329 (*o.a.*) × 33¼ × 8½ feet (*mean*)
H.P.: 36,000 = 36 kts.
Parsons geared Turbines (by Wallsend Co. in *Express*; by Parsons Co. in *Fame* and *Firedrake*; and by Builders in others), with exception of *Foxhound* and *Fortune*, which have Parsons L.P. and Brown-Curtis H.P. turbines.
Boilers: 3 Admiralty 3-drum type, working at 300 lbs. pressure, with 200° superheat.
Oil fuel: 480 tons.

General Note.—Express is fitted as a minelayer, with a light tripod aft to avoid shrouds, and carries whaler on forecastle deck. Mounts 2 guns less when acting as minelayer. Average cost approaches £300,000 apiece. Annual maintenance (direct expenditure), £41,000.

Engineering Notes.—Average speed of class on trials with designed horse power was 36·7 kts. Some reported to have reached 38 kts. Radius at 15 kts., 6,000 miles.

Name	*Begun*	*Launch*	*Completed*	*Name*	*Begun*	*Launch*	*Completed*
Fearless	17/7/33	12/5/34	22/12/34	*Echo*	20/3/33	16/2/34	25/10/34
Foresight	21/7/33	29/6/34	15/5/35	*Eclipse*	22/3/33	12/4/34	1/12/34
Foxhound	21/8/33	12/10/34	6/6/35	*Escapade*	30/3/33	30/1/34	3/9/34
Fortune	25/7/33	29/8/34	27/4/35	*Express*	23/3/33	29/5/34	3/11/34
Forester	15/5/33	28/6/34	29/3/35	*Electra*	15/3/33	15/2/34	17/9/34
Fury	19/5/33	10/9/34	18/5/35	*Encounter*		29/3/34	9/11/34
Fame	5/7/33	28/6/34	26/4/35				
Firedrake	5/7/33	28/6/34	30/5/35				

4 "Defender" class

Programme 1930 : 2 *Vickers-Armstrongs (Barrow)*: **Defender, Diamond.**
1 *Thornycroft* : **Decoy.**
1 *Fairfield* : **Dainty.**

Special Note.—Three more ships of this type, formerly named *Comet*, *Crusader* and *Cygnet*, were acquired by the Royal Canadian Navy in 1937 and 1938, and will be found on a later page.

Displacement : 1,375 tons. Dimensions : 317¾ (*pp.*), 326 (*w.l.*) × 33 × 8¼ feet (*mean*). Guns : 4—4·7 inch, 6 smaller. Tubes : 8—21 inch. Machinery : Parsons geared turbines. H.P. : 36,000 = 36 kts. Boilers : 3 Admiralty 3-drum type. Oil : 470 tons. Complement : 145.

5 "Beagle" class and 5 "Achates" class

BEAGLE. (All this class similar; no H.S.M.S. gear as in *Achates* class). 1937 *R. Perkins.*

Programme 1928
- 1 *Clydebank* : **Beagle.**
- 1 *Hawthorn Leslie* : **Boadicea.**
- 1 *Palmers* : **Boreas.**
- 2 *Swan Hunter* : **Brilliant, Bulldog.**

Displacement, 1360 tons.

Programme 1927
- 1 *Clydebank* : **Achates.**
- 2 *Hawthorn Leslie* : **Active, Antelope.**
- 1 *Scotts* : **Anthony.**
- 1 *Vickers-Armstrongs (Barrow)* : **Arrow.**

Displacement : 1,350 tons.

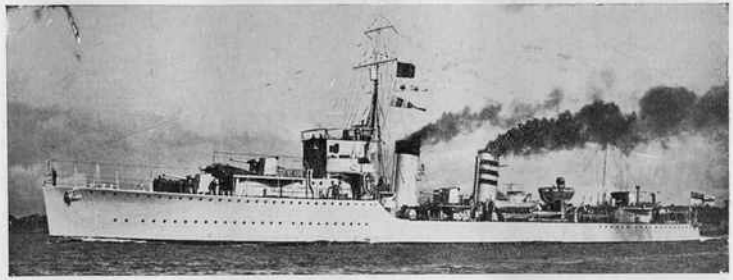
Dimensions : 312 (*pp.*), 323 (*o.a.*) × 32½ × 12 feet (*max.*), 8½ feet (*mean*). Guns : 4—4·7 inch, 6 smaller. Tubes : 8—21 inch on quadruple mounts. Machinery : Parsons geared turbines in all except the *Achates* and *Beagle*, which have Brown-Curtis H.P. turbines and Parsons L.P. 2 shafts. Designed S.H.P. : 34,000 = 35 kts. Boilers : 3 Admiralty 3-drum type, with superheaters (*see notes*). Oil fuel : 380 tons. Complement : 138.

General Notes.—A very successful class, all having exceeded designed speed with ease. Thus *Arrow* maintained 36·7 kts. with 34,119 H.P. for 6 hours, full power figures being those recorded at boiler capacity for this period. No short period spurts were included in the trials. Steam pressure is 300 lbs. per sq. inch and steam temperature 600° F. All have proved economical steamers, *Achates* class averaging ·81 lb. fuel per S.H.P. per hour, and *Beagle* class ·73 lb. per S.H.P. per hour.

Torpedo Note.—These are the first destroyers in which tubes were quadruply mounted.

Name	*Begun*	*Launch*	*Completed*	*Name*	*Begun*	*Launch*	*Completed*
Defender	6/31	7/4/32	28/10/32	*Dainty*	20/4/31	3/5/32	3/1/33
Diamond	9/31	8/4/32	2/11/32				
Decoy	6/31	7/6/32	4/4/33	*Achates*	11/9/28	4/10/29	27/3/30
				Active	10/7/28	9/7/29	9/2/30
Beagle	11/10/29	26/9/30	9/4/31	*Antelope*	11/7/28	27/7/29	20/3/30
Boadicea	12/7/29	23/9/30	3/31	*Anthony*	30/7/28	24/4/29	14/2/30
Boreas	7/29	18/7/30	2/31	*Arrow*	20/8/28	22/8/29	14/4/30
Brilliant	9/7/29	9/10/30	2/31				
Bulldog	10/8/29	6/12/30	3/31				

1 "A" Type Leader.



CODRINGTON. 1930 *Photo, Abrahams, Devonport.*

Codrington. Built by Swan Hunter. Laid down, 1928; launched, August 7, 1929. Completed, June, 1930.

Displacement : 1540 tons standard, 2000 tons full load. Dimensions : 332 × 33¾ × 12½ feet (*max.*), 9 feet (*mean*). Guns : 5—4·7 inch, 6 smaller. Tubes : 8—21 inch on quadruple mounts. Machinery : Parsons geared turbines. 2 shafts. Designed S.H.P. : 39,000 = 35 kts. Boilers : 4 Admiralty 3-drum, working pressure 300 lbs., with superheaters. Oil fuel : 500 tons. Complement : 185.

2 "A" Type.

AMAZON.

Appearance Note.—Forecastle continues well abaft bridge in these 2 ships, distinguishing them from other classes.

AMAZON. 1935, *R. Perkins.*

1 *Thornycroft*: **Amazon** (Jan. 27th, 1926). Displacement :1350 tons. Dimensions : 311¾ (*pp.*) × 31½ × 9¼ feet (*mean* draught).
1 *Yarrow*: **Ambuscade** (Jan. 15th, 1926). Displacement : 1170 tons. Dimensions : 307 (*pp.*) × 31 × 8¾ feet (*mean* draught).

AMBUSCADE. 1935, *R. Perkins.*

Guns : 4—4·7 inch, 6 smaller. Tubes : 6—21 inch in triple mounts. Machinery : Brown-Curtis turbines (all-geared type) H.P. and cruising ; Parsons L.P. Boilers : Admiralty 3-drum type, by Builders. Designed S.H.P. : 39,500 (*Amazon*), 33,000 (*Ambuscade*) = 37 kts. (made on trials). Superheated steam. Oil : *Amazon*, 433 tons ; *Ambuscade*, 385 tons. Complement : 138.

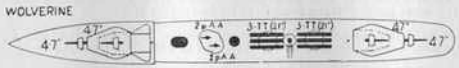
Notes.—Built under 1924–25 Estimates. All-steel bridges, higher freeboard and improved cabin accommodation are features of this and later types, which possess a larger radius of action than preceding classes. If necessary, induced ventilation can be supplied throughout the vessel, with a view to possible service in Tropics. *Ambuscade* laid down December 8th, 1924 ; *Amazon* in January, 1925. Both completed Sept., 1926. Cost : *Amazon*, £319,455 ; *Ambuscade*, £326,616.

13 Admiralty "Modified W."

WORCESTER. SEVEN, APPEARANCE AS ABOVE PHOTO :— *Added* 1939, *Wright & Logan.*

1 *Clydebank* : **Veteran.** 2 *Swan-Hunter* : **Whitshed, Wild Swan.**
4 *White* : **Witherington, Wivern, Wolverine, Worcester.** (Last ship completed by Portsmouth D.Y.)
To distinguish.—Proportions of funnels reversed compared with other V's and W's. These boats have *thick* fore funnel and *thin* after funnel. *No* AA. guns abaft 2nd funnel. 2 pdr. pom-poms *en echelon* between funnels. White boats have plain S.L. tower without compass platform on fore side. *Witherington* and *Wivern*, only, have oval after funnel, built in sideways. *Wild Swan* has tall mainmast.

WOLVERINE



WANDERER. 1937, *R. Perkins.*

WANDERER

SIX, APPEARANCE AS ABOVE PHOTO :—

1 *Beardmore* : **Vansittart.** 2 *Clydebank* : **Venomous** (ex *Venom*), **Verity.** 1 *Denny* : **Volunteer.**
1 *Fairfield* : **Wanderer.** 1 *Swan Hunter* : **Whitehall.** (Completed by Chatham D.Y.)
To distinguish.—Difficult to distinguish from six tube V's. The short mainmast separates them from Admiralty W's. Only distinctive feature is the 2—2 pdr. AA. guns abaft after funnel, *en echelon*. Only *Venomous* and *Verity* have compass platform forward of S.L. tower.

General Notes for both Types.

Displacement : 1120 tons (1500 tons *full load*). Dimensions : 300 (*p.p.*), 312 (*o.a.*) × 29½ × 10¼ feet (*mean*) *draught*. Guns : 4—4·7 inch (DIR. CON.), 2—2 pdr. pom-poms, 1 M.G., 4 Lewis. Tubes : 6—21 inch, in two triple mountings. Machinery : Turbines (all-geared type)—all Brown-Curtis, but *Whitehall*, Parsons. Designed S.H.P. 27,000 = 34 kts.* 2 screws. Boilers : Yarrow, except *White* boats with White-Forster. Oil : 374-353/324-318 tons ; *Whitehall*, 368/318. Complement, 134.
*Light load draught on *trials* ; on deep load 31 kts. with same S.H.P.
Notes.—Begun under War Emergency Programme, 1918, cost of completion of all comes under post-war Estimates. Differ from preceding V's in armament.

	Begun.	*Launch.*	*Comp.*		*Begun.*	*Launch.*	*Comp.*
Veteran	30/8/18	26/4/19	13/11/19	*Vansittart*	1/7/18	17/4/19	5/11/19
Whitshed	6/18	31/1/19	11/7/19	*Venomous*	31/5/18	21/12/18	6/19
Wild Swan ..	7/18	17/5/19	14/11/19	*Verity*	17/5/18	19/3/19	17/9/19
Witherington ..	27/9/18	16/4/19	10/10/19	*Volunteer*	16/4/18	17/4/19	7/11/19
Wivern	19/8/18	16/4/19	23/12/19	*Wanderer*	1918	1/5/19	18/9/19
Wolverine	8/10/18	17/7/19	27/7/20	*Whitehall*	6/18	11/9/19	9/7/24
Worcester	20/12/18	24/10/19	20/9/22				

2 Thornycroft "Modified W" Type.

WISHART (Rangefinder substituted for forward group of tubes). 1937, *R. Perkins.*

2 *Thornycroft:* **Wishart, Witch.** 1140 tons (1550 *full load*). Dimensions: 300 (*p.p.*), 312 (*o.a.*) × 30 ft. 7 in. × 10 feet, 11 ins. Guns: 4—4·7 inch (DIR. CON.), 2—2 pdr. pom-poms, 1 M.G., 4 Lewis. Torpedo tubes: 6—21 inch (3 in *Wishart*). Machinery: Brown-Curtis turbines (all-geared type). 2 shafts. Boilers: 3 Thornycroft. Designed S.H.P. 30,000 = 35 kts (light load draught on *trials*) and 32 kts. (deep load). Oil fuel: 374/322 tons. Complement, 134.

General Notes.—Begun under Emergency War Programme. Differ from Admiralty "Modified W's" in dimensions, H.P., speed and a few other details. *Witch* completed by Devonport D.Y.

To distinguish.—Big, flat-sided fore funnel, set well aft of bridges, both funnels nearly equal in height. Hull stands high out of water. (Plans generally as for *Wolverine* in preceding column.)

	Begun.	*Launch.*	*Comp.*
Wishart ..	6/18	18/7/19	6/20
Witch	6/18	11/11/19	3/24

2 Thornycroft Leaders.

BROKE. 1937, *R. Perkins.*

2 *Thornycroft:* **Broke** (ex-*Rooke*), **Keppel.** Displacement: 1,480 tons. Dimensions: 318¼ (*pp.*), 329 (*o.a.*) × 31 ft. 9 in. × 12¼ feet (*mean*), 14¼ (*max.*) draught. Guns: 5—4·7 inch B.L. (DIR. CON.), 1—3 inch AA., 2—2 pdr. pom-pom, 1 M.G., 4 Lewis. Tubes: 6—21 inch in 2 triple deck mountings. Machinery: Brown-Curtis all geared turbines. Designed S.H.P.: 40,000 = 36 kts. (Light load on *trials;* on deep load, same S.H.P. = 31 kts.). 2 shafts. Boilers: Thornycroft. Oil: 550/250 tons (*Keppel*, 500/250). Complement: 183

General Notes.—Built under War Emergency Programme. Appearance almost exactly same as *Campbell* class, but this pair have the usual big, flat-sided Thornycroft funnels. *Broke* was completed at Pembroke Dockyard, *Keppel* at Portsmouth and Pembroke. *Cancelled* 1918: *Saunders, Spragge, Barrington, Hughes.* Scrapped: *Shakespeare, Spenser. Wallace,* of this type, rearmed as Escort Vessel, 1939, and will be found on a later page. First cost: over £400,000 per ship.

Name.	*Begun.*	*Launch.*	*Comp.*	*Name.*	*Begun.*	*Launch.*	*Comp.*
Broke	10/18	23/4/20	13/12/24	*Mackay*	5/3/18	21/12/18	6/19
Keppel	11/18	16/9/20	15/4/25	*Malcolm*	27/3/18	29/5/19	14/12/19
Campbell	10/11/17	21/9/18	21/12/18	*Montrose*	4/10/17	10/6/18	14/9/18
Douglas	30/6/17	8/6/18	30/8/18				

5 Campbell Class (Leaders).

CAMPBELL. 1932 *Photo, R. Perkins.*

4 *Cammell Laird:* **Campbell, Douglas, Mackay** (ex *Claverhouse*), **Malcolm.**
1 *Hawthorn Leslie:* **Montrose.**

Note.—Stuart, of this class, transferred to R.A.N. *Bruce* scrapped. *Scott* lost, 1918.

Displacement: 1530 tons. Dimensions: 320 (*p.p.*), 332½ (*o.a.*) × 31¾ × 12½ feet (*max.*), 9½ feet (*mean*) draught. Guns: 5—4·7 inch B.L. (DIR. CON.), 1—3 inch AA. 2—2 pdr AA., 1 M.G., 4 Lewis. Tubes: 6—21 inch, in two triple mountings. Machinery: Parsons (all-geared) turbines in Cammell-Laird boats; Brown-Curtis in *Montrose.* Designed S.H.P.: 40,000 = 36·5 kts.* Boilers: Yarrow. Oil fuel: 504/401 tons. Complement: 183.
*On *trials*, light load draught; on deep load, 31 kts. with same S.H.P. (Other details in preceding column.)

7 Admiralty "W"

WARWICK. 1924 *Photo, Abraham.*

1 *Clydebank:* **Watchman.***
2 *Denny:* **Walker * Westcott.**
1 *Doxford:* **Walpole.**
1 *Fairfield:* **Wolfhound.**
1 *Hawthorn Leslie:* **Warwick.***
1 *White:* **Winchelsea.**

Note.—Vanquisher, although officially included in Admiralty "V" class in following column, is actually almost indistinguishable from Admiralty "W" type.
* Fitted as Mine Layers during War. Still have chutes at stern.

(Plans as for "6 tube V's" in following column.)

Displacement: 1100 tons. Dimensions: 300 (*p.p.*), 312 (*o.a.*) × 29½ × 10 ft. 10 ins. (*mean*), 11¼ (*max.*) draught. Guns: 4—4 inch (Mk. V. DIR CON.). 2—2 pdr. pom-poms, 1 M.G., 4 Lewis. Torpedo tubes: 6—21 inch in two triple deck mountings. Machinery: "All-geared" turbines, Brown-Curtis in all. 2 shafts. Designed S.H.P.: 27,000 = 34 kts. (Light load draught on *trials;* on deep load at 1,480 tons, 31 kts. with same S.H.P.). Boilers: 3 Yarrow, except *Winchelsea* with White-Forster. Oil: *about* 368/322 tons. Complement: 134.

General Notes.—All Emergency War Programme. *Waterhen* and *Voyager* transferred to R.A.N. *Walrus* ran ashore off Scarborough in Feb., 1938, and wreck was subsequently sold for scrapping. *Wakeful, Whitley, Wryneck, Westminster, Windsor, Wrestler, Winchester* all converted into escort vessels, 1938–39, and will be found on a later page. *Wessex* sunk in action with enemy aircraft off French coast, May, 1940.

To distinguish: From V's with 6 tubes: by taller mainmast.

	Begun.	*Launch.*	*Comp.*		*Begun.*	*Launch.*	*Comp.*
Watchman ..	17/1/17	2/12/17	1/18	*Wolfhound* ..	4/17	14/3/18	27/4/18
Waller ..	26/3/17	29/11/17	12/2/18	*Warwick* ..	10/3/17	28/12/17	18/3/18
Wescott ..	30/3/17	14/2/18	12/4/18	*Winchelsea* ..	24/5/17	15/12/17	15/3/18
Walpole ..	5/17	12/2/18	7/8/18				

12 Admiralty "V."

2 *Beardmore:* ***Vanessa, Vanity.***
1 *Hawthorn Leslie:* ***Verdun.***
2 *Stephen:* ***Vidette, Vesper.***
1 *Yarrow:* ***Vivacious.***
1 *Clydebank:* ***Vanquisher.***

All above have 6—21 inch tubes in 2 triple deck mountings (1920 alteration).

To distinguish.—Identical now with "Admiralty W" class, but have *short* mainmasts (except *Vanquisher*, which has *high* mainmasts like "W" class, from which she is practically indistinguishable in appearance).

VANOC. 1936, *Wright & Logan.*

1 *Clydebank:* ***Vanoc.***
1 *Beardmore:* ***Vimy*** *(ex-Vancouver).*
1 *Dorford:* ***Velox.***
1 *Hawthorn Leslie:* ***Versatile.***
1 *White:* ***Vortigern.***

All above have *five* 21 inch tubes in one triple (forward) and one double (after) deck mountings (1920 alteration). All fitted as Mine Layers during War, some retain chutes at stern.

To distinguish.—The mixed T.T. mountings are special to these boats, and render them distinctive.

Displacements: 1090 tons (1480 tons *deep load*). Dimensions: 300 (*p.p.*), 312 (*o.a.*) × 29½ × 10 ft. 10 in. (*mean*), 11¾ (*max.*) draught. Guns: 4—4 inch (Mk. V. DIR. CON.), 1—2 pdr. pom-pom, 1 M.G., 4 Lewis. Torpedo tubes: As noted above. Machinery: "All-Geared" turbines: Brown-Curtis in all, except *Veloz*, Parsons. 2 shafts. Designed S.H.P. 27,000 = 34 kts. (light load draught on *trials*) = 31 kts. (deep load draught). Boilers: 3 Yarrow in all, except *Vortigern* with White-Forster. Weight of machinery: 425 tons. Oil: 360/320 tons. Feed water: 20 tons + 7 for drinking. Complement: 134.

All Emergency War Programme.

Notes.—Minelayers: *Vimy, Velox, Versatile, Vortigern*, retain minelaying gear. *Vega, Vimiera, Vivien, Valorous, Valentine*, all converted into escort vessels.

	Begun.	*Launch.*	*Comp.*
Vimy ..	15/3/17	28/12/17	9/3/18
Vanessa ..	16/5/17	16/3/18	27/4/18
Vanity ..	28/7/17	3/5/18	21/6/18
Vanoc ..	20/9/16	14/6/17	8/17
Vanquisher ..	27/9/16	18/8/17	10/17
Veloz	1/17	17/11/17	1/4/18

	Begun.	*Launch.*	*Comp.*
Verdun ..	13/1/17	21/8/17	3/11/17
Versatile	31/1/17	31/10/17	11/2/18
Vesper ..	27/12/16	15/12/17	20/2/18
Vidette ..	1/2/17	28/2/18	27/4/18
Vortigern ..	17/1/16	15/10/17	25/1/18
Vivacious ..	7/16	3/11/17	12/17

Losses 1917–19.—*Vehement* (Denny). *Verulam* (Hawthorn Leslie) and *Vittoria* (Swan Hunter) lost 1919 in Baltic operations. *Valkyrie* mined and had to be almost entirely rebuilt at Chatham D.Y. *Valhalla* scrapped 1932; *Valkyrie, Vectis, Venturous, Violent*, 1936; *Vendetta* and *Vampire* transferred to R.A.N.; *Venetia* lost 1940.

2 Thornycroft "V."

VICEROY. *Added* 1935, *Wright & Logan.*

2 *Thornycroft:* ***Viceroy,†*** ***Viscount.*** 1120 tons. Dimensions: 300 (*p.p.*), 312 (*o.a.*) × 30⅝ × 10¾ feet (*mean*) 11¾ feet (*max.*) draught. Guns: 4—4 inch (Mk. V. DIR. CON.), 1—2 pdr. pom-pom, 1 M.G., 4 Lewis. Tubes: 6—21 inch in 2 triple deck mountings. Machinery: Brown-Curtis (all-geared) turbines. 2 shafts. Designed S.H.P. 30,000 = 35 kts.* Boilers: 3 Thornycroft. Oil fuel: 374/322 tons. Complement, 134.

* Light load draught on *trials*; on deep load at 1512 tons, 31 kts. with same S.H.P.

General Notes.—Emergency War Programme boats. Differ from Admiralty V design in dimensions, H.P. and speed. (Plans as "6 tube V's".) † H.S. Sweeps.

Viscount ..	12/16	29/12/17	3/18		*Viceroy* ..	12/16	17/11/17	1/18

1 Admiralty "R."

SKATE. (Pendant No. is now H 39). 1935, *R. Perkins.*

1 *Clydebank:* ***Skate.***

Displacement: 900 tons. Length (*p.p.*), 265 feet (*o.a.* 276 feet). Beam, 26¾ feet. *Mean* draught, 10½ feet. *Max.* draught, 15 feet. Guns: 3—4 inch (DIR. CON.), 1—2 pdr. pom-pom, 1 M.G., 4 Lewis. Torpedo tubes: 4—21 inch in pairs. Machinery: Brown-Curtis A.G. turbines. Designed S.H.P. 27,000 = 31 kts. 2 shafts. Boilers: 3 Modified Yarrow. Oil fuel: 301–285 tons. Complement, 98.

Note.—Skate has recently mounted only 2—4 inch, 2 T.T. forward, and minelaying chutes aft.

(Escort Types—12 Ships)

Photo wanted.

WALLACE (Thornycroft, Oct. 26, 1918). Displacement: 1,250 tons. Dimensions: 318½ (*pp.*), 329 (*o.a.*) × 31¾ × 12½ (*mean*), 14¾ feet (*max.*) draught. Guns: 4—4 inch H.A., 2 multi-M.G. Machinery: Brown-Curtis geared turbines. S.H.P.: 20,000 = 28 kts. Boilers: Thornycroft. Oil fuel: 550 tons (*max.* stowage).

Photo wanted.

2 *Thornycroft:* **WOLSEY** (March 16, 1918), **WOOLSTON** (Jan. 27, 1918). Displacement: 920 tons. Dimensions: 300 (*pp.*), 312 (*o.a.*) × 30½ × 10¾ feet (*mean* draught). Guns: 4—4 inch H.A., 2 multi-M.G. Machinery: Brown-Curtis geared turbines. S.H.P.: 18,000 = 28 kts. Boilers: 2 Thornycroft. Oil fuel: 374 tons.

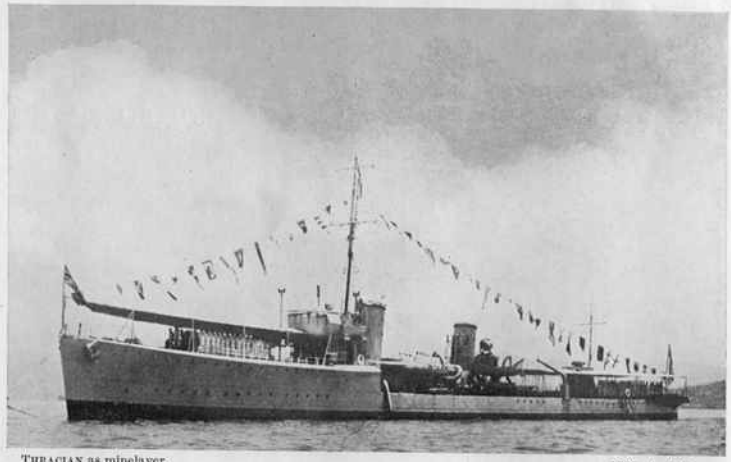
(*Appearance as* Whitley, *in War Loss section*)

1 *Doxford:* **VEGA** (Sept. 1, 1917).
1 *Palmer:* **WRYNECK** (May 13, 1918).
1 *White:* **WINCHESTER** (Feb. 1, 1918).
2 *Scotts:* **WESTMINSTER** (Feb. 24, 1918), **WINDSOR** (June 21, 1918).
2 *Swan Hunter:* **VIMIERA** (June 22, 1917), **WRESTLER** (Feb. 25, 1918).
1 *Denny:* **VALOROUS** (May 8, 1917).
1 *Yarrow:* **VIVIEN** (Feb. 16, 1918).

Displacement (as refitted): 900 tons. Dimensions: 300 (*pp.*), 312 (*o.a.*) × 29½ × 10¾ feet (*mean*). Guns: 4—4 inch H.A., 2 multi-M.G. Machinery: Brown-Curtis geared turbines in all except *Vega*, *Wryneck*, *Vimiera*, *Wrestler*, which have Parsons. S.H.P.: 18,000 = 28 kts. Boilers: 2 Yarrow in all except *Winchester*, which has White-Forster. Oil fuel: 360–370 tons.

Notes.—All above vessels were originally destroyers of 1917 design, but were rearmed for escort duties in 1938–39.

10 Admiralty "S."



Thracian as minelayer. 1938, *A. Hing*

2 *Clydebank:* ***Scimitar, Scout.***

3 *Hawthorn Leslie:* ***Thanet, Thracian,† Tenedos.***

1 *Scott:* ***Stronghold,***

3 *Stephen:* ***Sabre, Saladin, Sardonyx.***

1 *Doxford:* ***Shikari.***

† Completed by Sheerness D.Y., 1922. Rest completed 1918–19.

Displacement: 905 tons. Dimensions: 265 (*pp.*), 276 (*o.a.*) × 26¾ × 10½ feet (*mean*) draught. Guns: 3—4 inch (Mk. IV Dir. Con. with 30° elevation), 5 smaller. Tubes: 4—21 inch in pairs. Nearly all now fitted for minelaying. Machinery: Brown-Curtis turbines (all-geared type). Designed S.H.P.: 27,000 = 31 kts. 2 shafts. 3 Yarrow boilers. Oil: 301/254 tons. Complement: 98.

General Notes.—Emergency War Programme boats, but cost of completion of about 45 boats included in post-war Estimates. Design derived from "Admiralty Modified R" boats. Reported to be not quite so successful as the Admiralty R's. They are wet with sea on beam or bow; they ride well in head seas, but throw spray over bridges. No War losses.

Scrappings, etc.—Stonehenge wrecked 1920. *Speedy* and *Tobago* lost 1922. *Saturn*, *Sycamore* (both Stephen) cancelled. *Stalwart*, *Success*, *Swordsman*, *Tattoo*, *Tasmania*, presented to Royal Australian Navy, 1918 and since scrapped. *Sikh* sold 1925, *Spear* 1926, *Tactician*, *Seabear*, *Simoon*, *Shark*, *Sparrowhawk*, *Splendid*, *Tilbury* sold 1930. *Trinidad*, *Tintagel*, *Seawolf*, *Scythe*, *Tara*, *Truant* sold 1931. *Sepoy*, *Sterling*, *Serapis*, *Somme* sold 1932. *Sesame*, *Sirdar*, *Stormcloud*, *Steadfast*, *Strenuous*, *Tribune*, *Scraph*, sold 1933. *Seafire*, *Senator*, *Serene*, sold 1935. *Scotsman*, *Shamrock*, *Spindrift*, *Turbulent*, *Swallow*, *Sportive*, *Trojan*, *Trusty*, *Searcher*, sold 1936–37. *Sturdy* wrecked 1940. *Sabre* has been used as target ship, and *Shikari* was formerly employed as W/T control vessel for *Centurion*. Remainder of this class have been fitted for minelaying.

44 Ex-American Types

"Flush Deck" Design

The following is believed to be a complete and accurate list of names of the 44 U.S. destroyers that were originally selected for transfer to the Royal Navy under the Anglo-American Agreement of September 2, 1940, though in a few cases it is possible that other ships may have been substituted before delivery was effected. All are four-funnelled vessels with the exception of *Lincoln* and *Mansfield* which have only three funnels.

1 Burnham Class

Burnham (ex-*Alden*) (June 7, 1919).

Displacement: 1,190 tons. Dimensions: 310 (*w.l.*) × 30¾ × 9½ feet (*mean* draught). Machinery: Parsons geared turbines, 2 shafts. Boilers: 4 White-Forster. S.H.P. 25,000 = 35 kts. Oil fuel: 375 tons.

17 Belmont Class

Belmont (ex-*Aulick*) (April 11, 1919).
Beverley (ex-*Branch*) (April 19, 1919).
Bradford (ex-*McLanahan*) (Sept. 22, 1918).
Broadwater (ex-*Mason*) (March 8, 1919).
Broadway (ex-*Hunt*) (Feb. 14, 1920).
Burwell (ex-*Laub*) (Aug. 25, 1918).
Buxton (ex-*Edwards*) (Oct. 10, 1918).
Cameron (ex-*Welles*) (May 8, 1919).
Chesterfield (ex-*Welborn C. Wood*) (March 6, 1920).
Churchill (ex-*Herndon*) (May 31, 1919).
Clare (ex-*Abel P. Upshur*) (Feb. 14, 1920).
Newark (ex-*Shubrick*) (Dec. 31, 1918)
Newmarket (ex-*Swasey*) (May 7, 1919).
Salisbury (ex-*McCalla*) (March 28, 1919).
Sherwood (ex-*Rodgers*, ex-*Kalk*) (April 26, 1919).
Stanley (ex-*Bailey*) (Feb. 5, 1919).
Wells (ex-*Meade*) (May 24, 1919).

Displacement: 1,193 tons. Dimensions: 311 (*w.l.*) × 30¾ × 9½ feet (*mean* draught). Machinery: Curtis or Westinghouse geared turbines, 2 shafts. Boilers: 4 White-Forster or Yarrow. S.H.P. 25,000 or 27,000 = 35 kts. Oil fuel: 375 tons.

12 Caldwell Class

Caldwell (ex-*Hale*) (May 29, 1919).
Campbeltown (ex-*Buchanan*) (Jan. 2, 1919).
Castleton (ex-*Aaron Ward*) (April 10, 1919).
Chelsea (ex-*Crowninshield*) (July 24, 1919).
Lancaster (ex-*Twiggs*) (Sept. 28, 1918).
Leamington (ex-*Evans*) (Oct. 30, 1918).
Leeds (ex-*Philip*) (July 25, 1918).
Lewes (ex-*Wickes*) (June 25, 1918).
Montgomery (ex-*Farnall*) (June 19, 1918).
Richmond (ex-*Fairfax*) (Dec. 15, 1917).
Ripley (ex-*Tillman*) (July 7, 1919).
Rockingham (ex-*Claxton*) (Jan. 15, 1919).

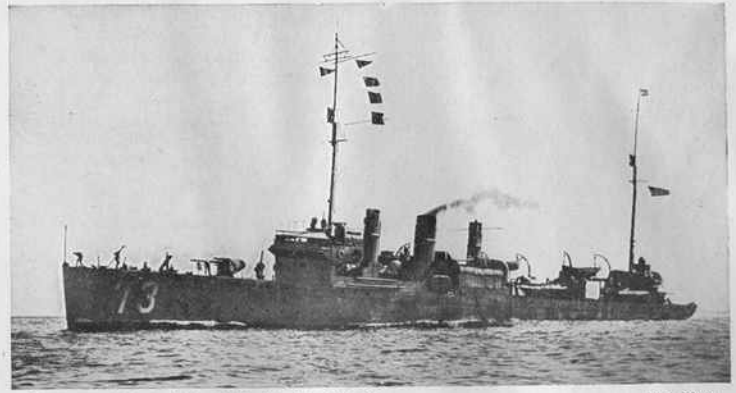
Displacement: 1,090 tons. Dimensions: 309 (*w.l.*) × 30½ × 8¾ feet (*mean* draught). Machinery: Parsons geared turbines 2 shafts. S.H.P. 24,200 to 27,000 = 35 kts. Boilers: 4 Thornycroft, White-Forster or Normand. Oil fuel: 375 tons.

11 Bath Class

Bath (ex-*Hopewell*) (June 8, 1918).
Brighton (ex-*Cowell*) (Nov. 23, 1918).
Charlestown (ex-*Abbot*) (July 4, 1918).
Georgetown (ex-*Maddox*) (Nov. 27, 1918).
Hamilton (ex-*Kalk*, ex-*Rodgers*) (Dec. 21, 1918).
Newport (ex-*Robinson*) (March 28, 1918).
Ramsey (ex-*Sigourney*) (Dec. 16, 1917).
Reading (ex-*Ringgold*) (April 14, 1918).
Roxborough (ex-*Foote*) (Dec. 14, 1918).
St. Albans (ex-*Thomas*) (July 4, 1918).
St. Mary's (ex-*Doran*, ex-*Bagley*) (Oct. 19, 1918).

Displacement: 1,030 tons. Dimensions: 309 (*w.l.*) × 30½ × 8½ feet (*mean* draught). Machinery: Parsons or Curtis geared turbines, 2 shafts. S.H.P. 24,200 to 27,000 = 35 kts. Boilers: 4 Thornycroft, Yarrow or Normand. Oil fuel: 300 tons.

3 Lincoln Class



Mansfield. (*Lincoln* similar; but *Ludlow* has 4 funnels). 1919 *Photo*

Lincoln (ex-*Conner*) (Aug. 21, 1917).
Ludlow (ex-*Conway*, ex-*Craven*) (June 29, 1918).
Mansfield (ex-*Stockton*) (July 17, 1917).

Displacement: 1,020 tons. Dimensions: 308 (*w.l.*) × 30¾ × 7¾ feet (*mean* draught). Machinery: Parsons turbines (geared only in *Ludlow*). 3 shafts, except *Ludlow*, 2. S.H.P. 18,000 = 30 kts. Boilers: 4 White-Forster, except *Ludlow*, 4 Thornycroft. Oil fuel: 290 tons.

Notes—All these ships are named after towns and villages common to the United Kingdom and the United States, and in some instances common to Newfoundland or the West Indies as well. When taken over all were armed with 4—4 inch, 50 cal., 2—·50 inch AA. and 12—21 inch torpedo tubes (tripled), but this armament may have been modified.

Bath, *Churchill* and *Hamilton* are understood to be fitted as Leaders.

New Construction.

6 Motor Torpedo Boats were to have been built under 1939 Programme; 3 more under 1938 Programme; and another had still to be ordered under that for 1936. Presumably all these have been duly completed.

No. 22.

1939, *courtesy Messrs. Vosper (Builders).*

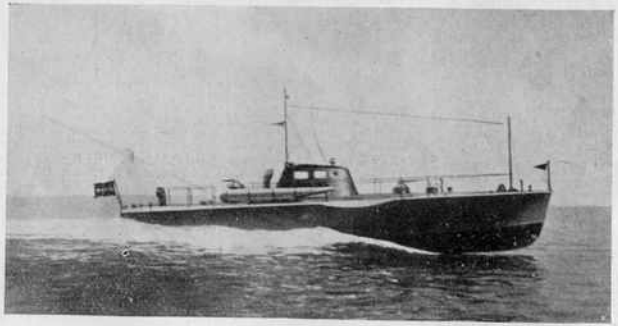
2 *Thornycroft :* **Nos. 24, 25.**
1 *Vosper :* **No. 22.**
Displacement : 32 tons. Dimensions 72 × 16½ × 3¾ feet. Armament : 2—21 inch torpedo tubes, 2 M.G. AA. Machinery : 3 Isotta-Fraschini engines. B.H.P. : 3,450 = over 40 kts. (40 kts. can be maintained at ¾ throttle). 2 auxiliary cruising engines on wing shafts, which automatically turn over to main engines at 9 kts. Below that speed these engines can be used for silent approach. Are of a new design based on experience gained with *No.* 102. All laid down 1938 under programme for that year.

(*Photo wanted.*)

1 *Vosper :* **No. 103** (1939). Believed to be similar to *No.* 102 below.

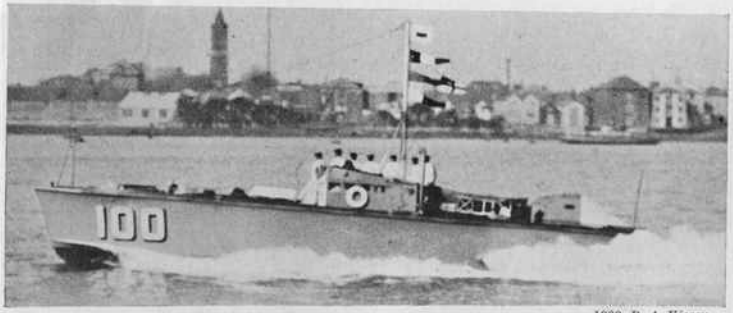
1938, *courtesy Messrs. Vosper, Ltd.*

1 *Vosper :* **No. 102.** (1937). Displacement : 28 tons. Complement : 10. Dimensions : 68 × 14¾ × 3½ feet. Armament : 2—21 inch torpedo tubes, 2—20 mm. guns (twin mount, all-round firing positions). Machinery : 3 Isotta-Fraschini engines. B.H.P. : 3,000 = 47·8 kts. (light), 43·7 kts. fully loaded. Cost £22,529. (1937 Programme).



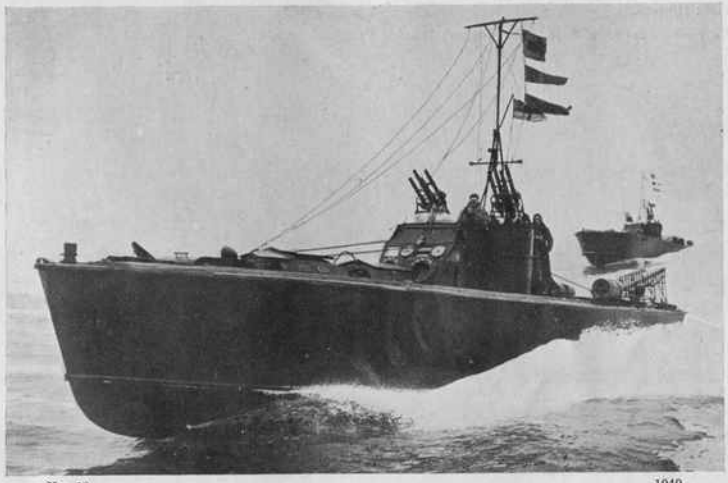
1939, *courtesy Builders.*

1 *White :* **No. 101.** (1937). Displacement : 22 tons. Dimensions : 67½ × 14½ × — feet. Armament : 2—21-inch torpedo tubes, 2—20 mm. in semi-enclosed mountings. Machinery : 3 Isotta-Fraschini engines. B.H.P. : 3,000 = 40 kts. Cost £36,700. (1936 Programme).



1939, *P. A. Vicary.*

British Power Boat type: **No. 100** (ex-*M.M.S.* 51). Completed as a motor minesweeper, 1937, but since converted into a torpedo boat. No particulars furnished, but understood to be of same general design as *Nos.* 1 to 19 below. (1936 Programme).



No. 18. 1940

18 *British Power Boat* type: **Nos. 1** (ex-7), **2, 3, 4, 5, 6, 7** (ex-13), **8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19** (ex-*No.* 1), (1936–38). Displacement: 18 tons. Complement: 7. Dimensions: 60 × 13¼ × 2¼ feet. Armament: Troughs for 2—18 inch torpedoes, and 8 Lewis guns. Machinery: 3 Napier Sealion engines. B.H.P.: 1,500 = 35 kts. Radius of action: 500 miles at 20 kts. Six of this class provided under 1935 Estimates, 3 under 1936, and 9 under 1937. Cost about £28,000 apiece.

Note.—It will be observed that there is no No. 13.

Miscellaneous Motor Vessels.

(For Motor Minesweepers, see a later page).

M.A.S.B. 1. 1939 *Fighting Ships*

5 *British Power Boat* type: M.A.S.B. **Nos. 2 to 6.** (1938–39). Built under 1938 Estimates.

1 *British Power Boat* type: M.A.S.B. **No. 1.** Built under 1936 Estimates.

Displacement: 18 to 20 tons. Dimensions: 60 × 13¼ × 3 feet. B.H.P. 1,000= kts.

(6 more of this series were provided for under 1939 Programme.)

D.C.B. **No. 1.** (1937). Built by British Power Boat Co. No particulars furnished.

Note.—The Italian submarine *Galileo Galilei* was captured at Aden in June 1940, but it has not been stated if she has been repaired and put into service with the British fleet.

16 Triton class

TRIUMPH. 1939, *Wright & Logan.*

2 *Chatham Dockyard:* ***Tigris, Torbay.***
4 *Vickers-Armstrongs:* ***Triton, Triumph, Truant, Tetrarch.***
4 *Cammell Laird:* ***Trident, Taku, Talisman, Thunderbolt*** *(ex-Thetis)*
2 *Scotts:* ***Tribune, Tuna.***
4 more authorised under 1939 Estimates.

Displacement: *Triton*, 1,095/1,579 tons; others, 1,090/1,575 tons. Complement: 53. Dimensions: 265 (*pp.*), 275 (o.a.) × 26½ × 12 feet. Guns: **1**—4 inch, **2** smaller. Tubes: **10**—21 inch. H.P.: 2,500/1,450 = 15·25/9 kts. Fuel: 210 tons.

Notes.—Officially described as "Patrol type" submarines, for general service. A return to moderate dimensions is the outstanding feature. Cost averages just under £350,000. *Thetis* foundered on trials, June 1, 1939, but is under salvage.

Est.	*Name*	*Begun*	*Launch*	*Completed*
1935	*Triton*	28/8/36	5/10/37	11/38
1936	*Thunderbolt*	21/12/36	29/6/38	40
	Tribune	3/3/37	8/12/38	39
	Trident	12/1/37	7/12/38	39
	Triumph	19/3/37	16/2/38	4/3/39
1937	*Taku*	18/11/37	20/5/39	40
	Tigris	11/5/38		40
	Truant	24/3/38	5/5/39	40
	Tuna	13/6/38		40
1938	*Talisman*	27/9/38		40
	Tetrarch	24/8/38		40
	Torbay	21/11/38		40
1939	4 vessels	1939	1940	1941

3 Porpoise class (Minelayers.)

PORPOISE. (Only one of class with this type of forecastle). 1935, *R. Perkins.*

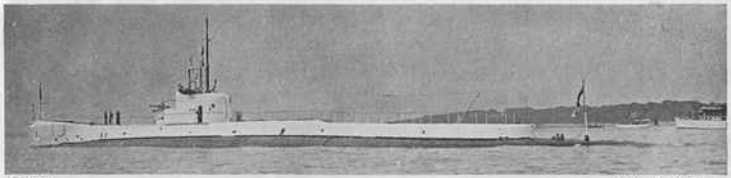
2 *Vickers-Armstrongs:* ***Porpoise, Rorqual.***
1 *Scotts:* ***Cachalot.***
Displacement: 1,520/2,157 tons, except *Porpoise*, 1,500/2,053 tons. Complement, 55.
Dimensions: 271½ × 25½ × 15 feet (*Porpoise*, 267 × 29½ × 13¾ feet) (*mean*).
Guns: **1**—4 inch, **2** M.G. Tubes: **6**—21 inch (bow).
Diesels of B.H.P. 3,300 = 15·75 kts. surface. (*Porpoise*, 15 kts.).
Electric motors, H.P. 1,630 = 8·75 kts. submerged.
Fuel: 136 tons.

Notes.—Very successful ships. Cost *Rorqual*, £350,639 *Cachalot*, £371,557.

Est.	*Name*	*Begun*	*Launch*	*Completed*
1930	*Porpoise*	22/9/31	30/8/32	25/4/33
1934	*Rorqual*	1/5/35	21/7/36	10/2/37
1935	*Cachalot*	12/5/36	2/12/37	15/8/38

(Oceangoing Types.)

2 Severn class.



CLYDE. 1935, *R. Perkins.*

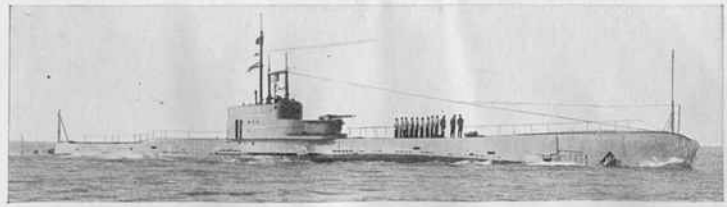
SEVERN. 1935, *R. Perkins.*

2 *Vickers-Armstrongs:* ***Severn, Clyde.***
Displacement: 1,850/2,723 tons. Complement 60.
Dimensions: 325 × 28 × 13¼ feet. *Clyde,* 325 × 28½ × 13¾ feet.
Guns: 1—4 inch, 2 M.G. Tubes: 6—21 inch (bow). Electric motors, H.P. 2,500 = 10 kts. submerged.
Diesels, B.H.P.: 10,000 = 22·25 kts. on surface.

Notes.—These were the first Diesel-driven submarines to exceed 21 kts. Cost: *Clyde,* £459,886 *Severn,* just over £500,000.

Est.	*Name*	*Begun*	*Launch*	*Completed*
1931	*Severn*	27/3/33	16/1/34	2/35
1932	*Clyde*	15/5/33	15/3/34	4/35

2 Regent class



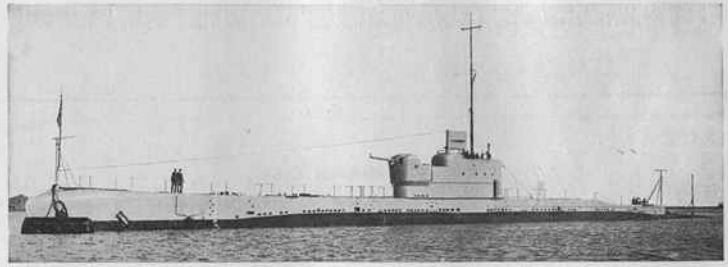
ROVER. 1935, *Wright & Logan.*

2 *Vickers-Armstrongs:* ***Regent, Rover*** (All 11th June, 1930).

Displacement: 1475/2030 tons. Dimensions: 260 × 28 × 13 ft. 10 in. (*mean*). Armament: 1—4 inch, 2 M.G. 8—21 inch tubes. Designed H.P. 4400/1320 = 17·5/9·0 kts. Fuel: 156 tons. Complement, 50.

Laid down 1929 under 1928–29 Estimates. Two more boats, *Royalist* (Beardmore) and *Rupert* (Lairds) cancelled in July, 1929. *Regent* completed Sept. 1930; *Rover,* Jan. 1931.

4 Parthian class



PERSEUS. 1930, *R. Perkins.*

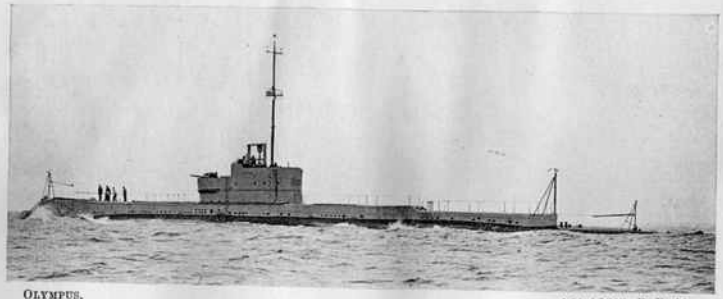
1 *Chatham:* ***Parthian*** (June 22nd. 1929)
3 *Vickers-Armstrongs:* ***Pandora*** (*ex Python*) (Aug. 22nd. 1929), ***Perseus*** (May 22nd. 1929). ***Proteus*** (July 23rd, 1929).

Displacement: 1475/2040 tons. Dimensions: 260 × 28 × 13¾ ft. (*mean*). Armament: 1—4 inch gun, 2 M.G., 8—21 inch tubes. Designed H.P. $\frac{4400}{1320}$ = $\frac{17\cdot5}{9\cdot0}$ kts. Fuel: 159 tons. Complement, 50.

General Notes.—All laid down 1928 under 1927 Estimates. Generally resemble "O" type, with higher surface speed and other improvements. Completed during 1930. *Poseidon* lost in collision June 9th, 1931. *Phoenix* missing, August 1940.

3 Olympus Class. (Oceangoing Types.)

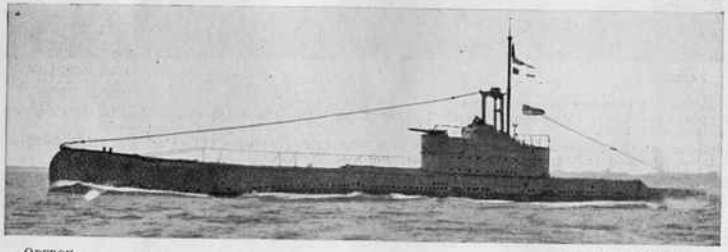
Appearance Notes.—Three differing types of "O" series can be distinguished by shape of bows. *Oberon* has bow and C.T. screen as shown in photo. *Otway* is the only unit of this class with net cutters at bows.



OLYMPUS. *Added* 1940, *R. Perkins.*

1 *Beardmore:* **Olympus** (Dec. 11th, 1928).
2 *Vickers-Armstrongs:* **Osiris** (May 19th, 1928), **Otus** (Aug. 31st, 1928).
Displacement: 1475/2038 tons. Dimensions: 260 (*p.p.*), 283½ (*o.a.*) × 28 × 13½ feet draught. Guns: 1—4 inch, 2 M.G. Tubes: 8—21 inch (6 bow, 2 stern). Designed H.P. 4400/1320 = 17·5/9 kts. Oil fuel: 200 tons. Complement, 50.

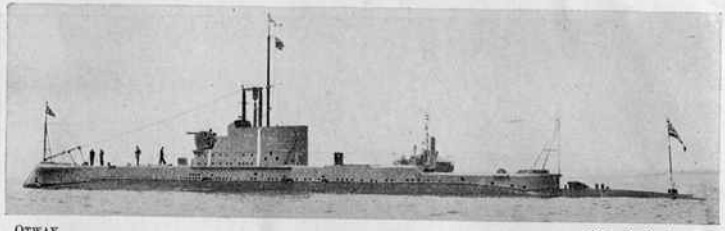
2 Oberon Class.



OBERON. 1936, *Wright & Logan.*

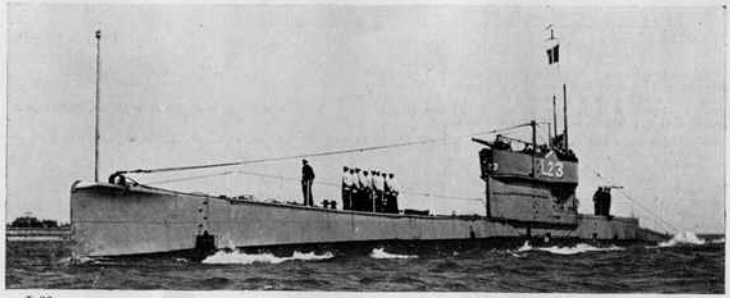
1 *Chatham Dockyard:* **Oberon (Ex O.1.** Sept. 24th, 1926). Displacement 1311/1831 tons. Dimensions: 270 (*o.a.*) × 28 × 13½ feet (mean). H.P.: 2,950/1,350 = 15/9 kts. Fuel: 185 tons. Laid down March, 1924; completed, Dec. 31, 1926.
1 *Vickers-Armstrongs:* **Otway** (ex-*AO* 2, Sept. 7, 1926). Completed in 1927. Displacement: 1,349/1,872 tons. Dimensions: 275 (*o.a.*) × 27¼ × 13½ feet (*mean*). H.P.: $\frac{3000}{1320} = \frac{15·5}{9 \text{ kts.}}$ Fuel: 195 tons.

Otway completed in June–July, 1927, for the Royal Australian Navy and presented to the Royal Navy in 1931.
Following details are common to both vessels: Complement: 54. Guns: 1—4 inch, 2 M.G. Tubes: 8—21 inch (6 bow 2 stern).



OTWAY 1935, *R. Perkins.*

3 L Class.



L 23. 1938, *Wright & Logan.*

3 *Vickers* (Completed by Dockyards): ***L 23, L 26, L 27,*** (1918–19).

Admiralty saddle-tank type.

Displacement: 760/1,080 tons. Dimensions: 229 (*pp.*), 238½ (*o.a.*) × 23½ × 13½ feet. Complement: 39. Armament: 1—4 inch and 1 M.G., and 4—21 inch tubes. Machinery: 2 sets 12-cylinder solid injection Vickers type Diesels. H.P.: 2,400/1,600 = 17·5/10·5 kts. Fuel: 70 tons.

Notes.—All begun under Emergency War Programme, 1916. Equipment of these boats is extensive, e.g., refrigerating machinery for storage batteries, gyro compass with repeaters. 3 periscopes (one for night work), directional hydrophones, &c. Breastwork revolves with gun. *L* 10 War loss. *L* 24 rammed off Portland, January, 1924. *L* 9 foundered in a typhoon at Hong Kong, August, 1923, but was salved the following month; since sold. Above 3 submarines are the sole survivors of a once very numerous class, with the exception of *L* 55 in Soviet Navy.

(Seagoing Types.)

4 Sealion class (Improved Swordfish design).

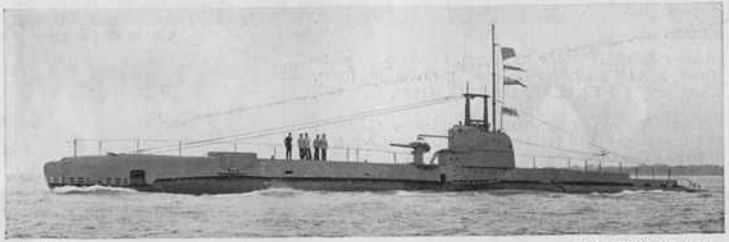
SUNFISH (Observe C.T.). 1937, *Wright & Logan.*

2 *Chatham Dockyard:* ***Snapper, Sunfish.***
1 *Cammell Laird:* ***Sealion.***
1 *Scotts:* ***Seawolf.***
Displacement: 670/960 tons. Complement: 40.
Dimensions: 193 (*pp.*), 202½ (*w.l.*) × 24 × 10½ feet (*mean*).
Guns: 1—3 inch, 1 M.G. Tubes: 6—21 inch (bow).
H.P.: 1,550/1,300 = 13·75/10 kts., except *Sunfish*, 1,900/1,300 = 15/10 kts. Fuel: 40 tons.

Notes.—Reputed to be very handy craft, capable of making a "crash-dive" in 30 seconds. Cost ranges between £230,000 and £245,000. Annual maintenance (direct expenditure only), £23,200.

Appearance Notes.—For differences, see silhouettes. *Seawolf* and *Sunfish* have slightly lower freeboard at bow.

1 *Chatham Dockyard:* ***Sturgeon.***
Displacement: 640/927 tons. Complement: 40.
Dimensions: 187 (*pp.*), 200¾ (*w.l.*) × 23½ × 10¼ feet (*mean*).
Guns: 1—3 inch, 1 M.G. Tubes: 6—21 inch (bow).
H.P.: 1550/1300 = 13·75/10 kts.
Fuel: 44 tons.



SEAWOLF. 1936 *Wright & Logan.*

Est.	*Name*	*Begun*	*Launch*	*Completed*
1929	*Sturgeon*	3/1/31	8/1/32	15/12/32
1931	*Sealion*	16/5/33	16/3/34	21/12/34
1932	*Snapper*	18/9/33	25/10/34	6/35
1933	*Seawolf*	25/8/34	28/11/35	12/3/36
1934	*Sunfish*	22/7/35	30/9/36	13/3/37

For appearance, see photo of SWORDFISH, *in War Loss section.*

(Coastal Types.)

2 Ursula Class.

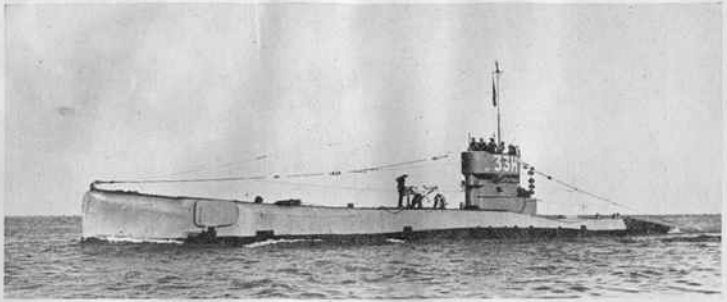
URSULA. *Added 1940, courtesy Vickers-Armstrongs, Ltd.*

2 *Vickers-Armstrongs:* ***Unity, Ursula.***
Displacement: 540/730 tons. Complement: 27. Dimensions: 180 × 16 × 12¾ feet. Armament: 6—21 inch tubes, 1 small gun. B.H.P.: 615/825 = 11·25/10 kts.

Programme	*Name*	*Begun*	*Launched*	*Completed*
1936	*Unity*	19/2/37	16/2/38	11/38
	Ursula		16/2/38	22/12/38

Notes.—Built under 1936 Programme. Cost slightly over £200,000 apiece.

8 "H" Class.



H 33. 1939, *Wright & Logan.*

H 33, 34 are only ones of class with flat-topped C.T.; *H* 43, 44 have right-angled after screen to C.T., instead of curved, as in others.

3 *Vickers:* **H 28, H 31, H 32** (all 1918).
2 *Cammell Laird:* **H 33, H 34** (both 1918).
2 *Armstrong Whitworth:* **H 43, H 44** (both 1919). (All used for training.)
1 *Beardmore:* **H 50** (1919).

Single-hull "Holland" (Electric Boat Co.) type modified by Admiralty. Displacement, 410/500 tons. Dimensions: 164½ (*p.p.*), 170 (*o.a.*) × 15½ × 12½ feet. Tubes: 4—21 inch bow. Machinery: 2 sets of Diesel engines, 8 cylinder, 4-cycle, air injection "H" type, each developing 240 B.H.P. at 375 r.p.m., and built by Vickers, North British Diesel Co., Ruston & Hornsby, &c. Oil: 16 tons. H.P. 480/320 = 13/10·5 kts. 1 M.G. Complement, 22.

Notes.—All built under War Emergency Programme. Launching dates as above. First boat delivered January, 1918, and *H* 44 last, in March, 1920. *H* 29 sank in dock at Devonport, August, 1926, and disposed of in consequence. *H* 42 lost 1922; *H* 47 sunk by collision with *L* 12, July, 1929. *H* 21, *H* 22, *H* 23, *H* 24, *H* 25, *H* 26, *H* 27, *H* 30, *H* 41, *H* 48, *H* 51, *H* 52 all scrapped. *H* 49 missing, Nov. 1940.

Sloops—Escort Type

4 Black Swan Class.

2 *Furness:* **ERNE, IBIS** (both 1940).
2 *Yarrow:* **BLACK SWAN** (July 7, 1939), **FLAMINGO** (April 18, 1939).

Displacement: 1,250 tons.
Dimensions: not announced.
Guns: 6—4 inch AA., 10 smaller.
Machinery: Geared turbines (by Richardson, Westgarth & Co. in *Erne* and *Ibis*). S.H.P 3,600 = 19·25 kts. Boilers: 2, of 3-drum type.

Note.—*Black Swan* laid down June 20, 1938; *Flamingo*, May 26, 1938, both under 1937 Estimates; other two in June 1939, under that year's Estimates.

3 Egret Class

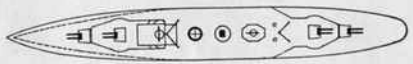
EGRET. 1938 *Wright & Logan.*

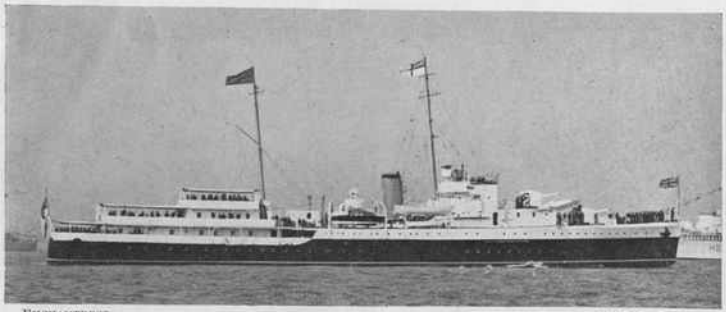
1 *White:* **EGRET** (May 31, 1938).
1 *Denny:* **AUCKLAND** (ex-*Heron*), (June 30, 1938).
1 *Thornycroft:* **PELICAN** (Sept. 12, 1938).

Displacement: 1,200 tons. Complement: 188.
Dimensions: 276 (*w.l.*) × 37½ × 8½ feet (*mean*).
Guns: 8—4 inch AA., 7 smaller.
Machinery: Parsons single reduction geared turbines. 2 shafts. S.H.P.: 3,600 = 19·25 kts.
Boilers: 2 Admiralty 3-drum type. Oil fuel.

Note.—*Egret* laid down July 21, 1937. *Auckland* in June, 1937, both under 1936 Estimates. *Pelican* in Sept., 1937, under those for 1937. First two completed in Nov., 1938, *Pelican* in April, 1939.

EGRET





ENCHANTRESS. 1937, *R. Perkins.*

1 *Clydebank :* **ENCHANTRESS** (ex-*Bittern*), (Dec. 21, 1934). Displacement : 1,085 tons.
1 *Denny :* **STORK** (April 21, 1936). Displacement : 1,190 tons.

Complement : 125.
Dimensions : 266 (*w.l.*) × 37 × 8½ feet (*mean*).
Guns : (*Enchantress*) **4**—4·7 inch (Only 2 mounted in peace time), **4**—3 pdr., **8** smaller.
(*Stork*) **6**—4 inch AA., **5** smaller.

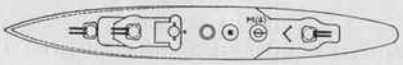
Machinery : Brown-Curtis (*Enchantress*), and Parsons (*Stork*) geared turbines. S.H.P. : 3,300 = 18·75 kts. Boilers : 2 Admiralty 3-drum type. Oil : 270 tons.

Notes.—Enchantress laid down March 9th, 1934 ; completed April, 1935. Design allows for removal of deckhouse aft, provided for use as Admiralty yacht, in order to mount two more 4·7 inch guns when required. *Stork* first completed as Surveying Vessel, but was relieved as such, and armed as Escort Vessel in 1939.

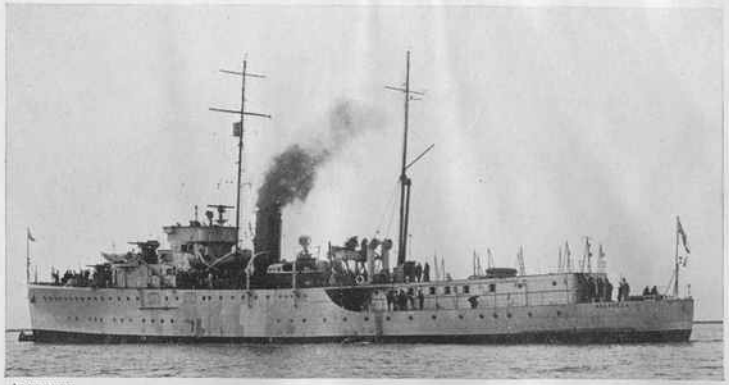
Cost of *Enchantress* was £169,175 ; of *Stork*, £159,366, exclusive of armament.‡

Estimates.—Enchantress, 1933 ; *Stork*, 1934.

STORK



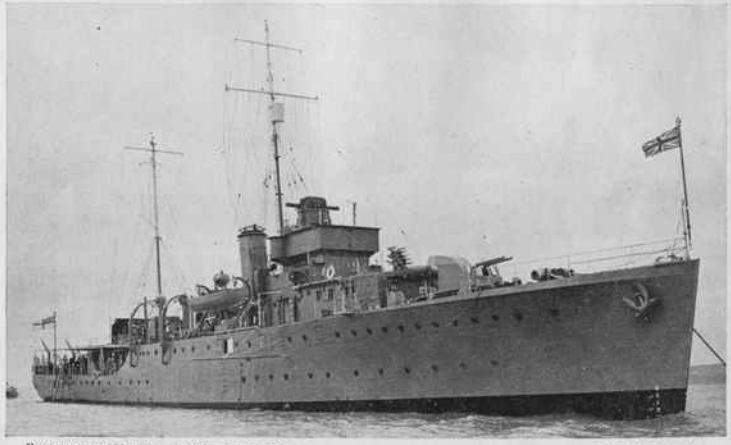
2 Aberdeen class



ABERDEEN. 1936.

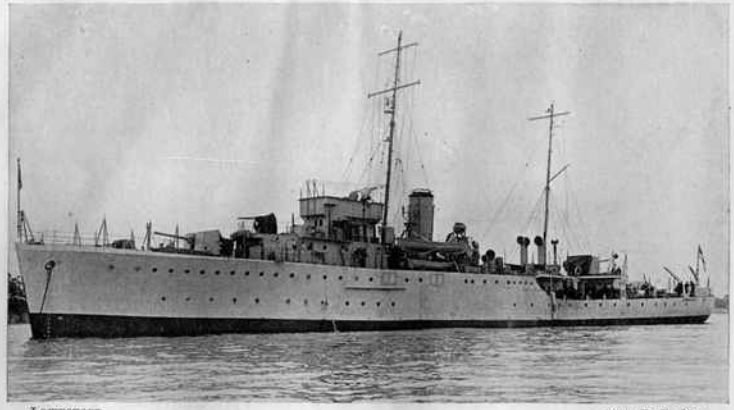
2 *Devonport Dockyard :* **ABERDEEN** (Jan. 22, 1936), **FLEETWOOD** (March 24, 1936).
Displacement : 990 tons. Complement, 100.
Dimensions : 250 (*p.p.*), 262 (*w.l.*), 266 (*o.a.*) × 36 × 7½ feet (*mean*).
Guns : **4**—4 inch AA., **9** smaller. (*Aberdeen*, only **2**—4 inch in peace time).
Machinery : 2 sets Parsons geared turbines. S.H.P. : 2,000 = 16·5 kts.
Boilers : 2 Admiralty 3-drum type. Oil fuel : 280 tons.

Notes.—Built under 1934 Estimates. Are improvements on the *Grimsby* design, closely resembling Australian sloops *Yarra* and *Swan*. *Aberdeen* carried two 4 inch guns less than *Fleetwood*, in order to provide for extra accommodation required while attached to flagship of Mediterranean Fleet.

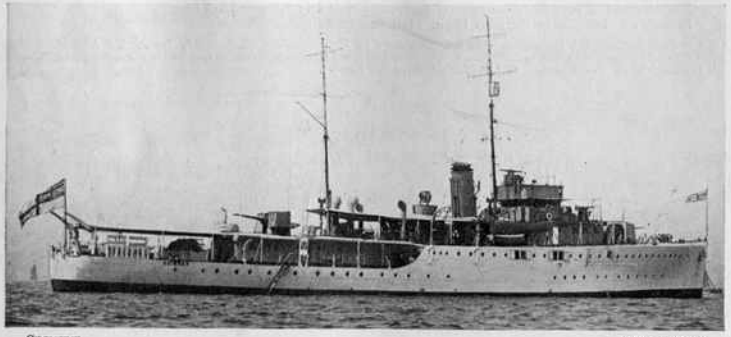


FLEETWOOD (Observe special armament). 1937, *R. Perkins.*

6 Grimsby class



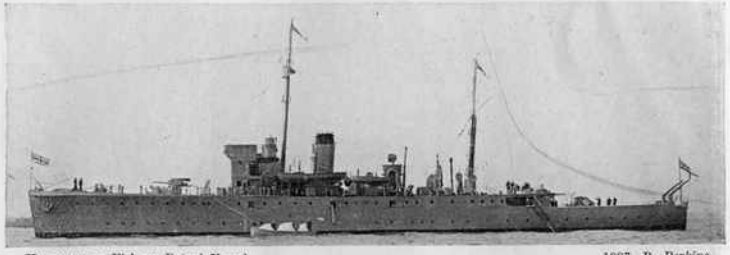
LOWESTOFT. 1934, *R. Perkins.*



GRIMSBY. 1938, *A. Hing.*

5 *Devonport Dockyard :* **GRIMSBY** (July 19, 1933), **LEITH** (Sept. 9, 1933), **LOWESTOFT** (April 11, 1934), **WELLINGTON** (May 29, 1934), **LONDONDERRY** (Jan. 16, 1935).
1 *Chatham Dockyard :* **DEPTFORD** (Feb. 5, 1935).
Displacement : 990 tons. Complement : 100.
Dimensions : 250 (*p.p.*), 262 (*w.l.*), 266 (*o.a.*) × 34 × 7¼ (*mean*), 8¾ feet (*max*). *Deptford* and *Londonderry* are 36 × 7¼ feet *mean*.
Guns : **2**—4·7 inch, **1**—3 inch AA., **2**—3 pdr., **10** M.G. (**4**—3 pdr. in last 2 ships).
Machinery : 2 sets Parsons geared turbines by J. S. White & Co., Ltd. S.H.P. : 2,000 = 16·5 kts. Boilers : 2 Admiralty 3-drum type. Oil fuel : 275 tons (280 in last two ships).

Notes.—Differ from earlier types in having AA. gun on superstructure forward. Built under following Estimates : 1931, *Grimsby, Leith ;* 1932, *Lowestoft, Wellington ;* 1933, *Londonderry, Deptford.* Cost from £160,000 to £175,000 each. All to be re-armed with six 4-inch guns on twin high angle mountings, as opportunities occur.



HASTINGS as Fishery Patrol Vessel. 1937, *R. Perkins.*

(2 BRIDGEWATER CLASS.)

2 *Hawthorn Leslie :* **BRIDGEWATER** (Sept. 14, 1928), **SANDWICH** (Sept. 28, 1928).
Displacement : 1,045 tons. Dimensions : 250 (*pp.*), 266 (*o.a.*) × 34 × 8¼ feet (*mean*).

(1 HASTINGS CLASS.)

1 *Devonport :* **HASTINGS,** (April 10, 1930).
Displacement : 1,025 tons. Dimensions : 250 (*pp.*), 266 (*o.a.*) × 34 × 8 feet (*mean*).

(4 SHOREHAM CLASS.)

2 *Chatham* **SHOREHAM** (Nov. 22, 1930). **ROCHESTER** (July 16, 1931).
2 *Devonport :* **FOWEY** (Nov. 4, 1930), **BIDEFORD** (April 1, 1931).
Displacement : 1,105 tons. Dimensions : 250 (*pp.*), 266 (*o.a.*) × 34 × 9 feet.

(3 FALMOUTH CLASS.)

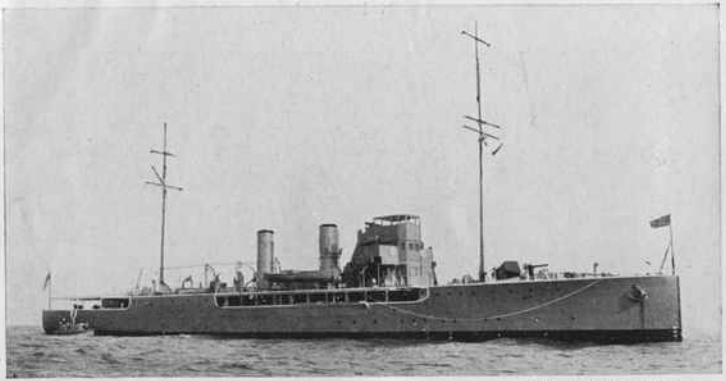
3 *Devonport :* **FALMOUTH** (April 19, 1932), **MILFORD** (June 11, 1932), **WESTON** (ex-*Weston-super-Mare*), (July 23, 1932).
Displacement : 1,060 tons. Dimensions : 250 (*pp.*), 266 (*o.a.*) × 34 × 8¾ feet.

Following particulars apply to all : Guns : **2**—4 inch AA., (*Hastings* and *Falmouth*, **1**—4 inch), **9** to **13** smaller. *Hastings* fitted for minelaying. Machinery : Parsons impulse reaction turbines (single reduction gearing). 2 shafts. 2 Admiralty 3-drum type boilers, pressure 250 lbs. Designed S.H.P. : 2,000 = 16—16·5 kts. Oil : 275 tons. Complement : 100. All are fitted for minesweeping. *Bridgewater* and *Sandwich* built under 1927 Estimates and both completed March, 1929. Under 1928 Estimates : *Hastings*, completed 1930–31. Under 1929 Estimates : *Fowey, Shoreham, Bideford, Rochester*, completed 1931–32. Under 1930 Estimates : *Falmouth, Milford, Weston*, completed 1932–33. Many of these ships understood to have been rearmed with six 4-inch guns on twin high angle mountings.

(For 2 vessels of *Hastings* class (*Folkestone* and *Scarborough*) converted into Surveying Vessels, *vide* a later page. It has not been stated whether they have been rearmed for war service, but this is quite likely.)

Escort type—*continued.*

"FLOWER" CLASS



LUPIN. 1936, *P. A. Vicary, Cromer.*

(ARABIS TYPE.)

1 *Simons :* **LUPIN** (May, 1916).
1 *Richardson Duck :* **ROSEMARY** (Nov. 1915).

Displacement : 1,175 tons.
Complement : 98.
Dimensions : 267¾ (*o.a.*) × 33½ × 11 feet.

(ACACIA TYPE.)

1 *Barclay Curle :* **FOXGLOVE** (Mar., 1915).

Displacement : 1,165 tons.
Complement : 104.
Dimensions : 262½ (*o.a.*) × 33 × 11 feet.

Guns : *Foxglove*, **2**—4 inch, **16** smaller ; Others, **1**—4 inch, **12** smaller.
Machinery : 1 set Triple expansion. 1 shaft.
I.H.P. ; 2,000 = 16·5 kts. (*Foxglove*, 1,800 = 16 kts.)
Boilers : 2 cylindrical.
Coal : 130/200 tons = about 2,000 miles at 15 kts.
(*Lupin* is oil fired.)

Notes.—Others of this class are *President* (ex-*Saxifrage*) and *Chrysanthemum*, which are used as headquarters and drill-ships for London Division R.N.V.R. ; *Cornflower*, now Harbour Drillship for Hongkong R.N.V.R., and *Laburnum*, fulfilling a similar function at Singapore. *Lupin* employed as accommodation ship for boys, 1939.

Patrol Type.

3 GUILLEMOT CLASS.

Photo wanted.

2 *Denny :* **GUILLEMOT** (July 6, 1939), **PINTAIL** (Aug. 18, 1939).
1 *White :* **SHEARWATER** (April 18, 1939).

Displacement : 580 tons.
Guns : **1**—4 inch AA.

Notes.—Laid down in August, 1938, under 1937 Estimates. Are understood to be an improvement on *Widgeon* design.

Patrol type—*continued.*

6 Kingfisher Class

WIDGEON (Pendant No. later altered to L 62). 1938, *P. A. Vicary, Cromer.*

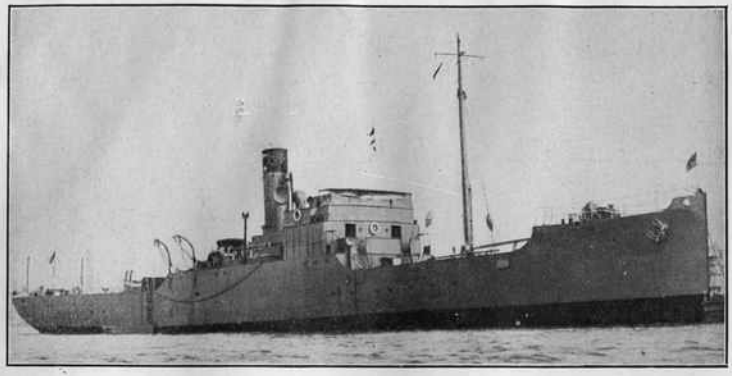
PUFFIN. 1936, *R. Perkins.*

1 *Fairfield :* **KINGFISHER** (Feb. 14, 1935.)
2 *Stephen :* **MALLARD** (March 26, 1936), **PUFFIN** (May 5, 1936.)
2 *Thornycroft :* **KITTIWAKE** (Nov. 30, 1936), **SHELDRAKE** (Jan. 28, 1937.)
1 *Yarrow :* **WIDGEON.** (Feb. 2, 1938).

Displacement : 510 tons (first 3), 530 tons (others).
Complement : 60.
Dimensions : 234 (*pp.*), 240 (*w.l.*), 243½ (*o.a.*) × 26½ × 6 feet (*mean*), except *Widgeon*, 26½ × 6½ feet.
Guns : **1**—4 inch AA., **8** smaller.
Machinery : Parsons geared turbines.
S.H.P. : 3,600 = 20 kts. Boilers : 2 Admiralty 3-drum (250 lb. working pressure). Oil : 160 tons.

Note.—Are designed for coastal convoy service and are therefore of smaller steaming radius but higher speed than the larger escort vessels. In general conception they resemble PC74, and will rely upon depth charges as their main offensive equipment. All can make their designed speed easily in service.
Kingfisher laid down June 1st, 1934 : completed June, 1935. Cost £93,288. *Mallard* and *Puffin* cost £214,379 for the pair.
Estimates.—*Kingfisher*, 1933 ; *Mallard* and *Puffin*, 1934 ; *Kittiwake* and *Sheldrake*, 1935 ; *Widgeon*, 1936.

Sloops (Patrol Type)—*Continued.*



1926 *Photo, Abrahams & Sons, Devonport.*

P.C.74 (J. S. White & Co., 1918).
610 tons. Dimensions: 233 (*pp.*), 247 (*o.a.*) × 26¼ × 8 feet. Armament: 1—4 inch, 24—30 D.C. Machinery: Brown-Curtis geared turbines. Boilers: White-Forster. 2 shafts. Designed S.H.P.: 3,500 = 20 kts. Oil: 164 tons *max.* Complement: 56.
General Notes.—Built under Emergency War Programme. Design converted or modified while building, to act as Submarine Decoy Vessel or "Q-boat." It was expected that, on account of shallow draught, torpedoes fired by U-boats would under-run *P.C.*-boats.

Fleet Minesweepers.

(Bangor Class—20 ships).

2 *Harland & Wolff (Govan):* **BANGOR, BLACKPOOL.**

2 *Denny:* **BRIDLINGTON, BRIDPORT.**

4 *Blyth D.D.:* **BLYTH, CROMARTY, DUNBAR, PETERHEAD.**

4 *Ailsa:* **BEAUMARIS, BOSTON, POLRUAN, RYE.**

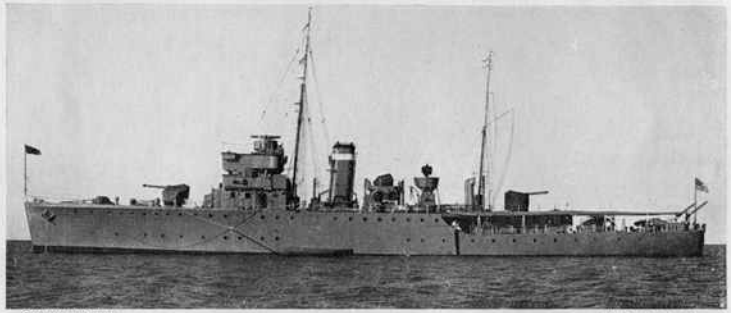
4 *Hamilton:* **ILFRACOMBE, LLANDUDNO, ROTHESAY, TENBY.**

2 *Lobnitz:* **RHYL, ROMNEY.**

2 *Robb:* **SIDMOUTH, STORNOWAY.**

No particulars of these vessels have been released. Machinery believed to be triple expansion, supplied by the following firms: *Bangor, Blackpool, Bridlington, Bridport,* Harland & Wolff, Govan; *Blyth, Peterhead,* White's Marine Engineering Co., Hebburn; *Cromarty, Dunbar,* Metropolitan Vickers; *Beaumaris, Boston,* English Electric Co.; *Polruan, Rye,* Thornycroft; *Ilfracombe, Llandudno,* British Thomson-Houston Co.; *Rothesay, Tenby,* J. Samuel White & Co.; *Rhyl, Romney,* Lobnitz; *Sidmouth, Stornoway,* Plenty & Son. Authorised under 1939 Estimates, and will ultimately replace old vessels of Improved "Hunt" Class.

17 Halcyon class



Sharpshooter. 1938, *R. Perkins.*

1 *Clydebank:* **HALCYON** (Dec. 20, 1933).

2 *Thornycroft:* **HARRIER** (April 17, 1934), **HUSSAR** (Aug. 27, 1934).

3 *Hamilton:* **SPEEDWELL** (March 21, 1935), **GOSSAMER** (Oct. 5, 1937), **SPEEDY** (Nov. 23, 1938).

2 *White:* **NIGER** (Jan. 29, 1936), **SALAMANDER** (March 24, 1936).

6 *Devonport Dockyard:* **HEBE** (Oct. 28, 1936), **SHARPSHOOTER** (Dec. 10, 1936), **LEDA** (June 8, 1937), **SEAGULL** (Oct. 28, 1937), **BRAMBLE** (July 12, 1938), **BRITOMART** (Aug. 23, 1938).

2 *Gray:* **HAZARD** (Feb. 26, 1937), **GLEANER** (June 10, 1937).

1 *Ailsa:* **JASON** (October 6, 1937).
Displacement: 815 tons (*Hazard, Hebe, Sharpshooter, Gleaner, Jason,* 835 tons; *Bramble, Britomart, Speedy,* 875 tons). Complement: 80.

Dimensions: 230 × 33½ × 7⅝ feet (*max.*), 6½ feet (*mean*), except *Gossamer, Leda, Seagull, Speedy, Bramble, Britomart,* 7¼ feet (*mean*).

Guns: 2—4 inch AA., 5 smaller.

Machinery: 2 sets 3-cylinder compound engines, fitted with poppet valves operated by rotary cam gear under totally enclosed forced lubrication system, in first 4; triple expansion in *Niger* and *Salamander;* geared turbines in others (by J. S. White & Co. in *Speedy,* and by Thornycroft in *Jason*).

I.H.P. 1,770=16·5 kts (first 4); 2,000=17 kts. in *Niger* and *Salamander;* 1,750=17 kts. in others. Boilers: 2 Admiralty 3-drum type. Oil fuel: 220 tons.

Notes.—Most of this class are named after minesweepers of 1914. Outstanding feature of earlier units is the novel machinery design. *Halcyon* built under 1931 Estimates: *Harrier, Hussar,* under 1932; *Speedwell,* 1933; *Salamander, Niger,* 1934; *Hazard, Hebe, Sharpshooter,* 1935; *Gossamer, Gleaner, Jason, Leda, Seagull,* 1936; *Bramble, Britomart, Speedy,* 1937. Cost averages over £100,000 each. *Seagull* was first rivetless ship built for the Royal Navy, construction being entirely welded.

Minesweepers—*continued.*

SELKIRK. 1939, *R. Perkins.*

(IMPROVED "HUNT" CLASS—21 Ships.)

4 *Ailsa S.B. Co.:* **ABERDARE, ABINGDON, ALBURY, ALRESFORD.**
1 *Ardrossan Co.:* **BAGSHOT.**
1 *Clyde S.B. Co.:* **DERBY.**
1 *Dunlop Bremner:* **FAREHAM.**
1 *Dundee S.B. Co.:* **FERMOY.**
2 *Eltringhams:* **HARROW, HUNTLY.**
1 *Fairfield:* **LYDD.**
2 *Lobnitz:* **PANGBOURNE, ROSS.**
3 *Murdoch & Murray:* **SALTASH, SALTBURN, SELKIRK.**
1 *Chas. Rennoldson:* **STOKE.**
1 *McMillan:* **SUTTON.**
2 *Simons:* **ELGIN, TEDWORTH.**
1 *Napier & Miller:* **WIDNES.**

All built under Emergency War Programme and launched between June, 1917 and Aug., 1919. Displacement, 710 tons; *except Tedworth*, 675 tons. Dimensions: 220 (*p.p.*), 231 (*o.a.*) × 28⅝ (*Tedworth* 28) × 7½ ft. (*mean* draught). Machinery: Vertical triple expansion. 2 shafts. Yarrow boilers. Designed I.H.P. 2200 = 16 kts.; *except Tedworth*, 1800 = 16 kts. Coal: 185 tons = *about* 1500 miles at full speed (*Tedworth*, only 140 tons). Complement of all, 73. Guns: 1—4 inch, 1 smaller. *Tedworth*, none recently.

Notes.—All were stationed at Malta and Singapore, except *Selkirk* (in reserve), *Tedworth*, tender to Gunnery and Diving Schools, Portsmouth, and *Alresford* and *Saltburn*, tenders to Navigation School. There are various minor variations in these ships, *e.g.*, many have had deck houses built aft, &c.
Peterfield lost 1932. *Marazion* scrapped 1933. *Forres, Caterham* and *Carstairs* scrapped 1934–35. *Tiverton* 1938. *Elgin* and *Lydd* on Disposal List. 1936, but decision reconsidered and ships refitted. *Dunoon, Dundalk* both lost during 1940.

2 Motor Minesweepers.

M.M.S. 1. 1939, *Charles E. Brown.*

2 *Thornycroft:* **M.M.S. 1** and **2** (1937). Built at Hampton-on Thames. Wood.

Displacement: 52 tons. Dimensions: 75 × 14¼ × 5 feet (*max.*). Complement: 11. Machinery: 3 Thornycroft Y. 12-cylinder petrol engines. 3 shafts. H.P.: 1,500 = 15 kts. (reduced to 10 kts. when sweeping). Radius: 18 hours at full speed.

Note.—Propellers are driven through S.L.M. oil-operated 2 : 1 reverse-reduction gears of the Modern Wheel Drive type.

River Gunboats.

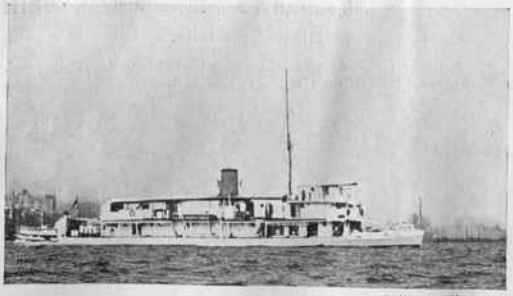
A River Gunboat was laid down in 1939, under that year's Estimates, by J. Samuel White & Co., Ltd.

DRAGONFLY 1939, *Courtesy of Messrs Thornycroft (Builders)*

DRAGONFLY (Dec. 8, 1938), **GRASSHOPPER** (Jan. 19, 1939), **LOCUST** (1940). Displacement: 585 tons. Dimensions: 197 × 33 × 5 feet. Complement: 74. Guns: 2—4 inch, 1—3·7 inch howitzer, 8 M.G. Machinery: Parsons geared turbines. S.H.P.: 3,800 = 17 kts. Fuel: 90 tons. Built under 1937 and 1938 Estimates, first two by John I. Thornycroft & Co., Ltd., third by Yarrow & Co., Ltd.

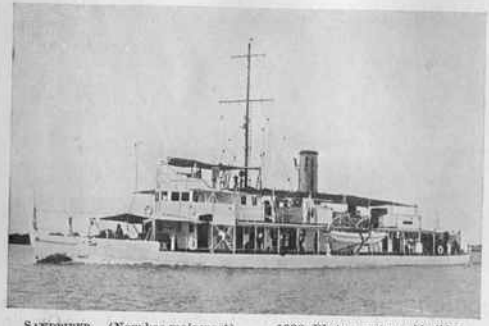
1938, *Charles E. Brown.*

SCORPION (J. S. White & Co., Ltd., Dec. 20, 1937). Built under 1936 Estimates. Displacement: 700 tons. Complement: 93. Dimensions: 200 (*pp.*), 208¾ (*o.a.*) × 34⅝ × 5½ feet. Guns: 2—4 inch, 1—3·7 inch howitzer, 2—3 pdr., 10 smaller. Machinery: Parsons geared turbines. S.H.P.: 4,500 = 17 kts. Fuel: 130 tons. Fitted for service as Flagship on Yangtse.



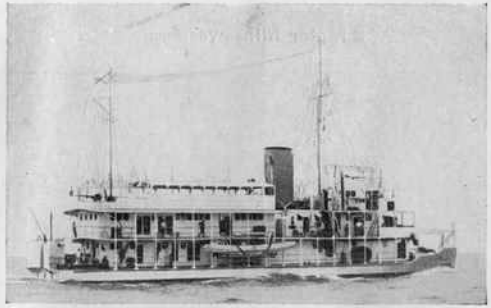
1938, *A. Hing.*

ROBIN (March 7, 1934). Built by Yarrow. Displacement: 226 tons. Complement: 42. Dimensions: 150 × 26¾ × 3 feet (*mean*). Guns: **1**—3·7 inch Howitzer, **9** smaller. Machinery: 2 sets reciprocating. 1 Admiralty 3-drum type boiler. H.P.: 800 = 12·75 kts. Oil fuel: 41 tons.



SANDPIPER. (Now has mainmast). 1933 *Photo, courtesy of builders.*

SANDPIPER (June 9, 1933). Built by Thornycroft. Displacement: 185 tons. Complement: 40. Dimensions: 160 × 30⅝ × 2 feet (*mean*). Guns: **1**—3·7 inch Howitzer, **9** smaller. Machinery: 2 sets Reciprocating, 2 shafts, 1 Admiralty 3-drum type boiler. H.P.: 600 = 11¼ kts.



FALCON. 1931 *Photo, favour of Messrs. Yarrow.*

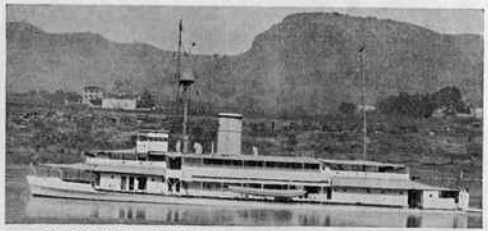
FALCON (1931) built by Messrs. Yarrow & Co., Ltd. Displacement: 372 tons. Complement: 55. Dimensions: 150 × 28⅝ × 5 feet (*mean*). Guns: **1**—3·7 inch Howitzer, **2**—6 pdr., **10** M.G. Machinery: Parsons geared turbines. Boilers, 2 Admiralty 3-drum type. S.H.P.: 2,250 = 15 kts. Fuel: 84 tons oil.

CICALA. 1938, *A. Hing.*

APHIS (1915), by Ailsa Co. **CICALA** (1915), **COCKCHAFER** (1915), **CRICKET** (1915), all by Barclay Curle. **GNAT** (1915), **LADYBIRD** (1915), both by Lobnitz. **MANTIS** (1915), **MOTH** (1915), both by Sunderland S.B. Co. **SCARAB** (1915), **TARANTULA** (1915), both by Wood, Skinner and Co. Displacement: 625 tons. Complement: 54–65. Dimensions: 237½ (*o.a.*) × 36 × 4 feet. Guns: **2**—6 inch (*Tarantula*, **1**—6 inch), **1**—3 inch AA., **10** smaller. Machinery: Triple expansion. Twin screws in tunnels fitted with Yarrow's patent balanced flap. Boilers: Yarrow. Designed H.P.: 2,000 = 14 kts. Fuel: 35 tons coal, 54 tons oil. (*Moth*, 76 tons oil only).

Note.—Messrs. Yarrow & Co., Ltd., were solely responsible for the design of these vessels, which were built under their supervision during the War.

Cricket and *Mantis* to be discarded shortly.



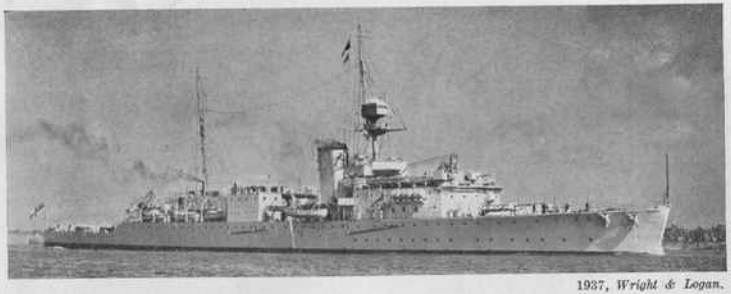
GANNET (1927) & **PETEREL** (1927), both designed and built by Messrs. Yarrow & Co., Ltd. Displacement, 310 tons. Dimensions: 177 (*w.l.*), 184⅝ (*o.a.*) × 29 × 3 ft. 2½ ins. draught. Guns: **2**—3 inch AA., **8** M.G. Machinery: Geared turbines. Boilers: Yarrow. Designed H.P. 2250 = 16 kts. Fuel: 60 tons oil. Complement, 55.

TERN. *Added* 1937, *courtesy Arthur Sye, late R.N.*

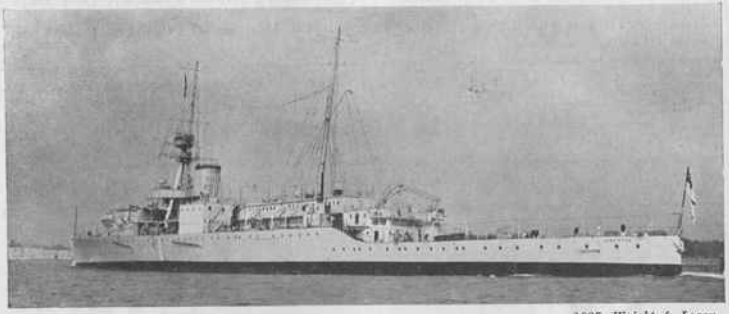
SEAMEW (1927), **TERN** (1927), both designed and built by Messrs. Yarrow & Co., Ltd. Displacement, 262 tons. Dimensions: 160 (*w.l.*), 167½ (*o.a.*) × 27 × 5½ feet *max.* draught. Guns: **2**—3 inch AA., **8** M.G. Armoured bridge and shields to guns. Machinery: Geared turbines. Boilers: Yarrow. Designed H.P.: 1,370 = 14 kts. Fuel: 50 tons oil. Complement: 55.

SCARAB. (GNAT identical.) *Photo added* 1925.
(TARANTULA has topmast *before* top.)

Cadets' Training Ship.



1937, *Wright & Logan.*



1937, *Wright & Logan.*

VINDICTIVE (ex-*Cavendish*) (Harland & Wolff, Jan. 17, 1918). Displacement: 9,100 tons. Complement: 468 + 200 cadets. Dimensions: 565 (*pp.*), 605 (*o.a.*) × 58 × 20½ feet (*max.*). Armament reduced during reconstruction to convert ship from a cruiser to a training ship. Guns: **2**—4·7 inch, **4**—3 pdr., **1**—2 pdr. pompom. Armour: 3″—1½″ side, 1″ deck, 3″ C.T. Machinery: Parsons geared turbines. 4 shafts. Boilers: 6 Yarrow (only 4 in use). S.H.P.: 25,000 = 23 kts.

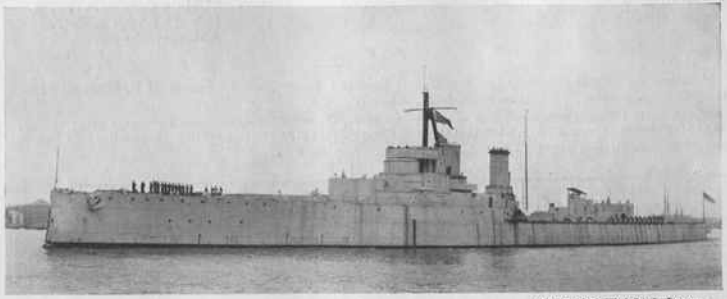
Notes.—Built under Emergency War Programme as a cruiser of improved *Birmingham* class, completed as an aircraft carrier and renamed *Vindictive*, 1918. Converted into a cruiser again, 1923–25. Reconstructed as Cadets' training ship, 1936-37, at a cost of £280,000. Normal Complement of cadets is 200.

Gunnery Firing Ship and Boys' Training Ship.

1933 *Photo, Cribb.*

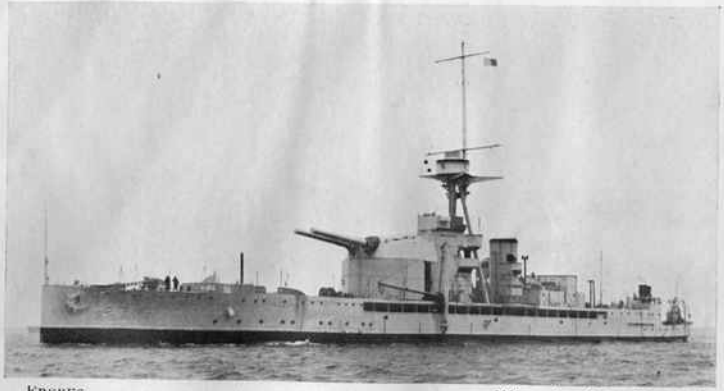
IRON DUKE (ex-battleship), (Portsmouth, Oct. 12, 1912). Demilitarised under London Treaty, 1931–32, when B and Y turrets, conning tower, belt armour, and t.t. were removed, and boiler power reduced. Employed as Gunnery T.S. Present displacement (standard), 21,250 tons. Dimensions: 580 (*pp.*) × 90 × 26 feet. Guns: **6**—13·5 inch, **12**—6 inch, others being mounted temporarily in addition for trial purposes. Speed: 18 kts. (Oil fuel only. Complement: 589 (exclusive of boys under training).

Target Ship



Added 1938, *Wright & Logan.*

CENTURION (ex-battleship). (Devonport, Nov. 18, 1911). Standard Displacement: 25,500 tons. Dimensions: 555 (*p.p.*) × 89 × 30 feet. Speed (with oil fuel): 16 kts. Complement: 250. Employed as wireless controlled target, for attack by guns up to 8-inch calibre. Is fitted with special relay equipment operated by wireless impulses from an attendant destroyer equipped with special plant. Signals of varying strength control different parts of the *Centurion's* mechanism. The helm can be moved over, the speed regulated and oil fuel fed to the boilers as requisite.



EREBUS. 1939, *courtesy Messrs. Thornycroft.*

EREBUS (19th June, 1916), **TERROR** (18th May, 1916).
Displacement, 7200 tons. Complement, 315.
Length, (*p.p.*) 380, (*o.a.*) 405 feet. Beam, 88 feet. *Mean* Draught, 11 feet.

Guns:
2—15 inch, 42 cal.*
8—4 inch in *Terror*.
2—3 inch (anti-aircraft)
10 smaller.
(12 in *Erebus*)
* H.A. elevation.

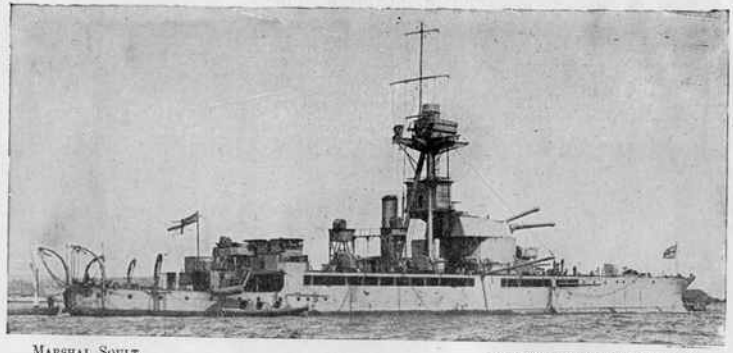
Armour:
4″ Bulkheads, F. & A.
8″ Barbette .....
13″—4¼″ Gunhouse ....
4″ Box citadel (over magazines) .....
6″ C.T. .....
1″ Fo'cle & upper decks
4″ Main deck (slopes)
2″ Main deck .....
1½″—¾″ Lower deck ..
Anti-torpedo pro. bulges.

Machinery: Triple expansion. 2 shafts. Boilers: Babcock. Designed H.P. 6000=12 kts. Fuel: 650 tons *normal*, 750 tons, *maximum*, oil only.

Gunnery Notes.—15 inch are high angle and can range up to 40,000 yards. Smoke screen apparatus fitted. *Erebus* has 15 inch removed from *M. Ney*, when that ship was disarmed for duty at Devonport (see note in following column).
Special Protection.—Bulges about 15 feet deep, sub-divided into 50 w.t.c.

Name	*Builder and Machinery*	*Begun*	*Completed*	*Trials*
Erebus	Harland & Wolff (Govan)	Oct., 1915	Sept., 1916	7244 H.P. = 14·1 kts.
Terror	Harland & Wolff (Belfast)	Oct., 1915	Aug., 1916	6235 H.P. = 13·1 kts.

General Notes.—Both Emergency War Programme. *Erebus* has a bow rudder fitted under forefoot.
Differences.—Mainly confined to masting.



MARSHAL SOULT. 1923 *Photo, Abrahams, Devonport.*

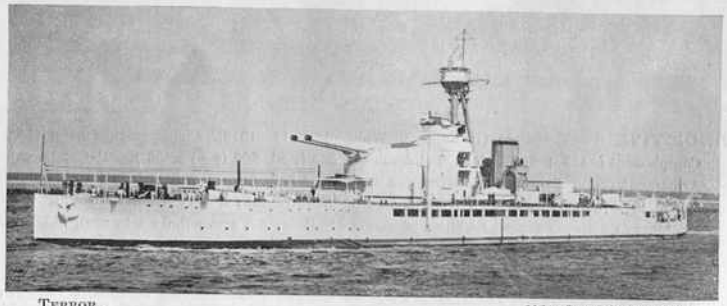
MARSHAL SOULT (17th June, 1915).
Displacement, 6400 tons. Complement, 280.
Length, 340 (*p.p.*), 355¾ (*o.a.*) feet. Beam, 90¼ feet. Draught, 10½ feet.

Guns: 2—15 inch (DIR. CON.), H. A. elevation. Armour: 8″ Barbette, 13″—4½″ Gunhouse; 4″ Bulkheads fore and aft, 6″ C.T., 4″—1″ Box Citadel over Magazine, 1″ Fo'cle Deck, 2″—1½″ Upper Deck, Lower Deck 3″ at bow, 1½″ at stern, 1″ Navig. Position. Deep bulge Protection.

Machinery: 2 sets Diesel. 4 shafts. Designed H.P. 1500 = 6·7 kts. Fuel: 235 tons, *maximum* oil only.

Name	*Builder*	*Machinery*	*Begun*	*Completed*	*Trials*
M. Soult	Palmer	Vickers	Jan., 1915	Nov., 1915	1898 H.P. = 6·6 kts.

General Notes.—Emergency War Programme. Serves as Gunnery Training Ship at the Nore. Sister Ship *M. Ney* now Hulk *Drake*, at Devonport.



TERROR. 1934, *Grand Studio, Malta.*

1938, *R. Perkins.*

ALBATROSS (Feb. 21st, 1928).

Standard Displacement: 4,800 tons. Complement: 450. Length: (*pp.*) 422 ft., (*o.a.*) 443¾ ft. Beam: 58 feet (60½ feet *extreme*). Draught: 13¾ feet (*mean*), 16¼ feet (*max.*). Guns: 4—4·7 inch AA., 32 smaller. Accommodation for 9 seaplanes. (At present 6 Seagull S/R Amphibians are carried.) 1 Catapult. Machinery: Parsons geared turbines. 2 screws. Designed H.P.: 12,000 = 21 kts. Boilers: 4 Yarrow. Oil fuel: 997 tons.

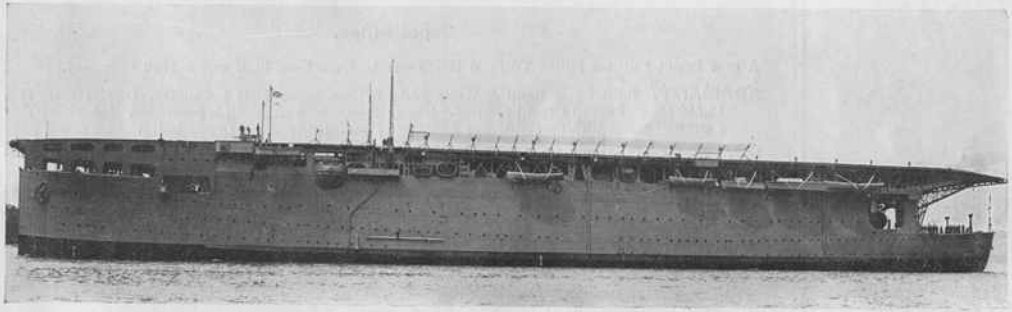
General Notes.—Laid down at Cockatoo Yard, Sydney, in April, 1926, and completed at end of 1928. Cost £1,200,000 complete with armament and equipment. Trials, Dec., 1928, gave 22·5 kts. *maximum* with 12,910 H.P. Transferred to Royal Navy from Royal Australian Navy in 1938.

Building.

UNICORN. Fleet Air Arm Supply and Repair Ship. Laid down 1939 by Harland & Wolff under 1938 Estimates. Displacement: 14,500 tons. Dimensions: 564 × 90 × 19 feet. Guns: 8—4·5 inch, 2 multiple pompoms. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 40,000 = 22 kts.

(Hein mat gear aft.) 1935, *J. Perkins, Esq.*

PEGASUS (ex-*Ark Royal*) (Blyth S.B. Co., 1914, purchased during construction 1914). 6,900 tons. Dimensions: 353½ (*p.p.*), 366 (*o.a.*) × 50⅝ × 17½ feet (*mean*). Guns: 10 M.G. and Lewis. I.H.P.: 3,000 = 11 kts. Machinery: Vertical triple expansion. 1 screw. Boilers: Cylindrical. Oil: 500 tons. Complement: 139. Originally employed as a Seaplane Carrier. Now used in experimental work with aircraft landing rafts and catapults.



1938, *R. Perkins.*

ARGUS (2nd Dec., 1917). Late Liner.

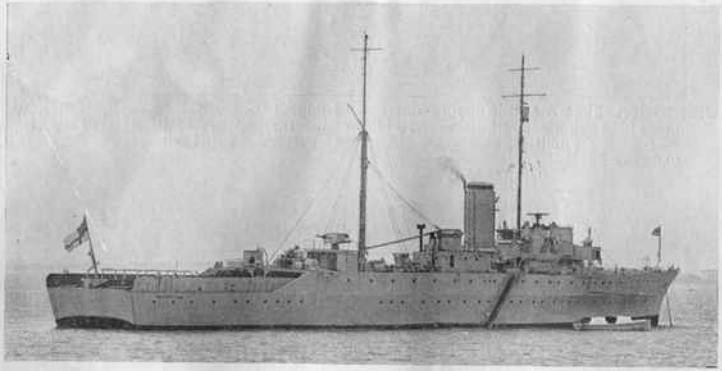
"Queen Bee" Tender for training purposes.

Displacement, 14,000 tons. Complement, 373.
Length, (*p.p.*) 535 feet (*w.l.*) 560 feet (*o.a.*) 565 feet.
Beam, 68 feet (excluding bulges).
Draught, 21 feet, *mean*.
Guns: 18 M.G. and Lewis.

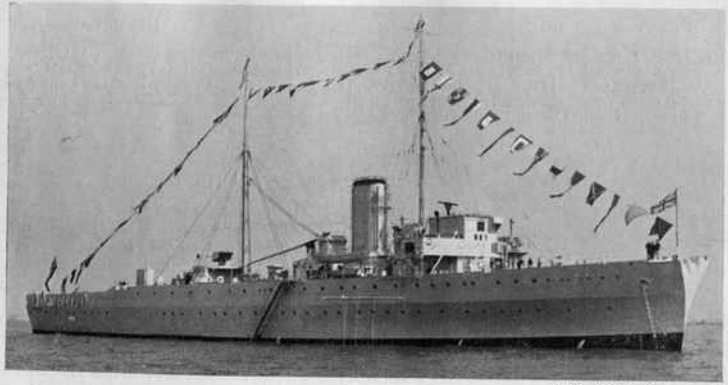
Machinery (by builders): Parsons turbines. 4 shafts. Designed S.H.P. 20,000 = 20 kts. Boilers: 12 cylindrical (6 D.E. and 6 S.E.), with Howdens forced draught. Fuel: 2,000 tons oil.

General Notes.—Begun 1914, by Beardmore, for Italian Lloyd Sabaudo Line, as S.S. *Conte Rosso.* All work on her ceased in 1914. She was purchased in 1916 and converted to Aircraft Carrier. Completed September, 1918, at a cost of £1,307,615. Refitted 1925–26, and bulges added, extending from just forward of bridge to below exhaust fans aft. Again refitted in 1937 as a "Queen Bee" tender, and general anti-aircraft target service ship, flight deck being levelled at fore end and widened by 5 feet, tapering to a point forward. Accelerators have been fitted for throwing off target planes, of which 8 are carried.

Netlayers.



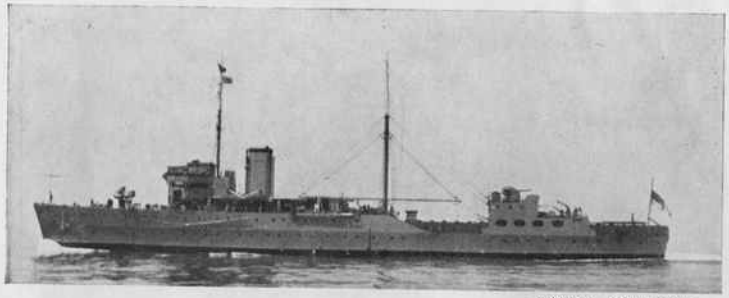
1937, *R. Perkins.*



1937, *Vicary, Cromer.*

PROTECTOR (Aug. 20, 1936). Laid down by Messrs. Yarrow & Co., Ltd., August 15, 1935, under 1934 Estimates. Completed end 1936. Displacement: 2,900 tons. Complement: 190. Dimensions: 310 (*pp.*), 338 (*o.a.*) × 50 × 11¼ feet (*mean*). Guns: 1—4 inch, 1 multi-M.G. Machinery: Parsons geared turbines. S.H.P.: 9,000 = 20 kts. Boilers: 2 Admiralty 3-drum type. Oil fuel: 690 tons. Cost: £326,230.

Netlayers—*continued.*



1939, *P. A. Vicary, Cromer.*

GUARDIAN (Chatham Dockyard, Sept. 1, 1932).
Displacement: 2,860 tons. Complement: 181.
Dimensions: 310 × 53 × 12½ feet (*max.*), 11½ feet (*mean*).
Guns: 2—4 inch AA., 1 multiple M.G.
Machinery: Parsons geared turbines by Wallsend Co. H.P.: 6,500 = 18 kts.
Boilers: 2 Admiralty 3-drum type. Oil Fuel: 720 tons.

General Notes.—Designed for Net-laying and Fleet Photography work. The nets, sinkers and buoys are stowed to port and starboard, on the upper deck from just forward of the main-mast under the forecastle deck to the stern. The structure aft, placed on the deck spanning the nets, is the photographic cabin.

This ship is very beamy in relation to her length, the proportion being 1:6 only. She is intended for instructional purposes and the laying of special barrages to protect the fleet she accompanies. These are intended to be retrieved—a laborious job—and re-laid as requisite.

Laid down October 15, 1931; completed June 13, 1933.

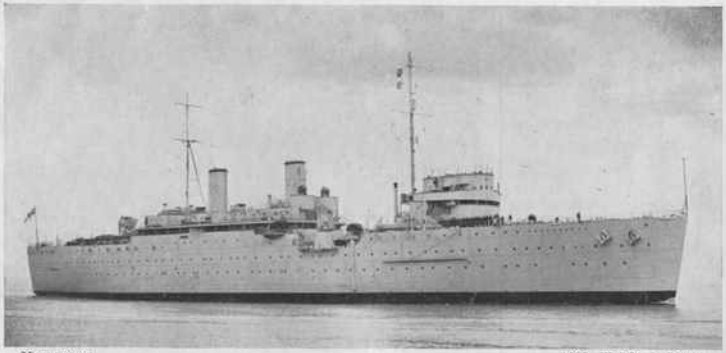
Depot Ships.

A new Depot ship for Motor Torpedo Boats was to have been built under 1939 estimates.

ADAMANT. Built by Harland & Wolff, Ltd., Belfast, under 1938 Estimates. Displacement: 12,500 tons. Length: (*o.a.*) 646 feet. Guns: 8—4·5 inch, 2 multiple pompoms. Machinery: Parsons geared turbines. S.H.P.: 8,000 = 17 kts. (Submarine Depot Ship).

HECLA (1940). Built by John Brown & Co., Ltd., Clydebank, under 1938 Estimates. Will probably be of same type as *Tyne* below. (Destroyer Depot Ship).

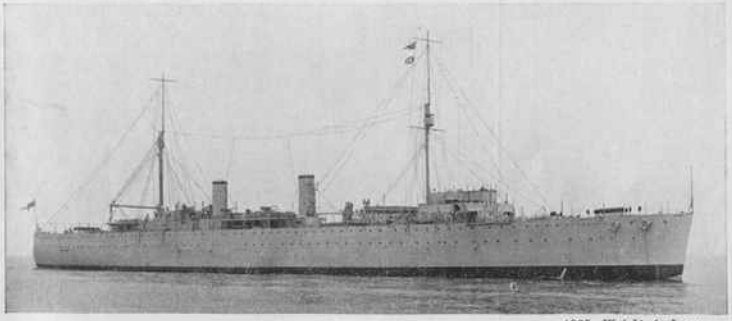
TYNE (1940). Built by Scotts' S.B. & E. Co., Ltd., under 1937 Estimates. Displacement: 11,000 tons. Length: (*o.a.*) 623 feet. Guns: 8—4·5 inch, 2 multiple pompoms, several smaller. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 7,500 = 17 kts. 4 boilers of 3-drum type. (Destroyer Depot Ship).



MAIDSTONE 1938, *Wright & Logan.*

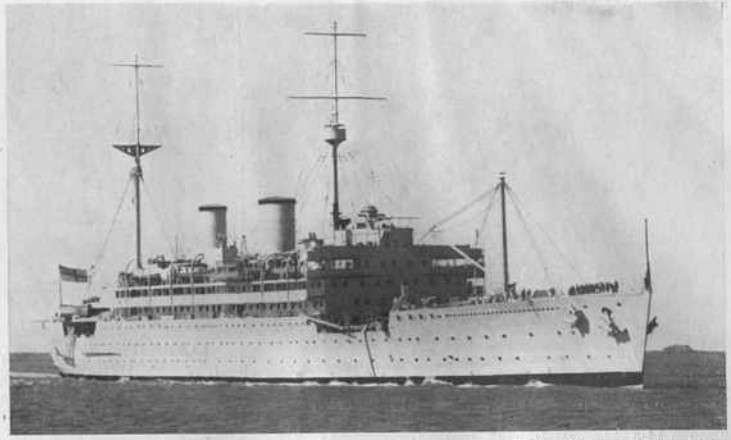
MAIDSTONE (Oct. 21, 1937), **FORTH** (Aug. 11, 1938). Both built at Clydebank. Displacement: 8,900 tons. Complement: 502 (including 64 repair staff and 43 as spare submarine crew). Dimensions: 497 (*pp.*), 531 (*w.l.*), 574 feet (*o.a.*) × 75 × 20 feet (*mean*). Guns: **8**—4·5 inch, **2** multiple pompoms, **4**—3 pdr., **4** smaller. Machinery: Brown-Curtis geared turbines. S.H.P.: 7,000 = 17 kts. (Depot Ships for Submarines.)

Notes.—Maidstone ordered Aug. 17, 1936, under 1935 estimates and completed May 5, 1938; *Forth* laid down June 30, 1937 under estimates for that year, and completed May 14, 1939. Armament is notable, being the heaviest yet mounted in a British depot ship. Guns are in pairs, two forward, two aft and two sponsoned on either beam. Equipment includes a foundry; coppersmiths', plumbers' and carpenters' shops; heavy and light machine shops; electrical and torpedo repair shops; and plant for charging submarine batteries.



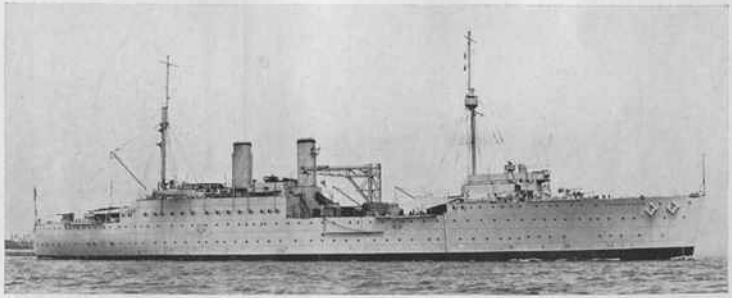
1935, *Wright & Logan.*

WOOLWICH (Fairfield, Sept. 20, 1934). Displacement: 8,750 tons. Complement: 350. Dimensions: 575 × 64 × 14$\frac{3}{4}$ feet (*mean* draught). Guns: **4**—4 inch AA., **10** smaller. Machinery: 2 sets single reduction geared turbines. 2 shafts. S.H.P.: 6,500 = 15 kts. Boilers: 4 Admiralty 3-drum type. Oil fuel: 1,170 tons. Authorised under 1932 Estimates. Laid down May 24, 1933, and completed June, 1935. Carries a full equipment of machine tools of the latest type, with a total motor H.P. exceeding 2,000. (Depot ship for Destroyers.)



1937, *Lieut. R. L. Jordan, R.N.*

MEDWAY. (Vickers, July 19, 1928). Laid down April, 1927, under 1926–27 Estimates, and completed in Sept., 1929. Displacement: 14,650 tons. Complement: 400. Dimensions: 545 (*p.p.*), 580 (*o.a.*) × 85 × 22$\frac{1}{2}$ feet (*max.*). Guns: **2**—4 inch, **4**—4 inch AA., **12** smaller. Has 2-shaft double-acting 2 stroke M.A.N. Diesel engines, total H.P.: 8,000 = 16 kts. Oil: 530 tons own fuel + 1,900 tons for submarines. Equipment includes a Foundry, Machine shop, Plate shop, Smithy, Torpedo shop, Plumber's shop, etc. Designed to mother 18 submarines.



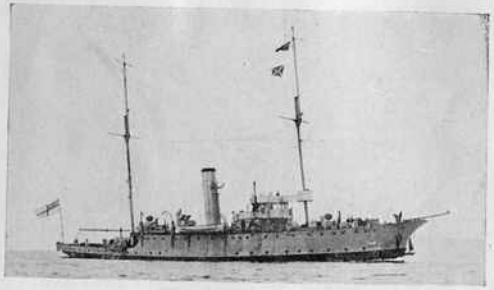
1934 *Photo, Wright & Logan.*

RESOURCE (Vickers, Nov. 27, 1928). (Fleet Repair Ship).
Displacement: 12,300 tons. Complement: 450. Dimensions: 500 (*p.p.*) × 83 × 22$\frac{1}{2}$ feet (*max.*).
Guns: **4**—4 inch AA., **4** smaller.
2 sets Parsons single reduction geared Turbines. H.P.: 7,500 = 15 kts.
4 Admiralty type 3-drum boilers, 235 lbs. pressure. Oil: 1,100 + 350 tons for other vessels.

1931 *Photo, Kestin, Weymouth.*

TITANIA (Clyde S.B. Co., 1915, purchased 1915). 5,250 tons. Dimensions: 335 (*pp.*) × 46½ × 18 feet 5 inches. I.H.P.: 3,200 = 14·5 kts. Coal: 498 tons. Complement: 249. Cyl. boilers.

(Submarines.)



1921 *Photo, Gieves, Ltd.*

ALECTO (Laird, 1911). 935 tons. Dimensions: 190 (*p.p.*), 212 (*o.a.*) × 32½ × 11 ft. 1 in. (*mean*). Guns: none. Designed H.P. 1400 = 14 kts. Coal: 180 tons. Complement, 76.

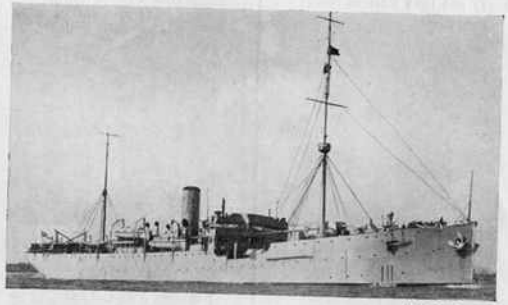
(Submarines.)

1937, *R. Perkins.*

LUCIA (Furness Withy & Co., 1907, ex German Prize, *Spreewald*,* converted by Clyde S.B. Co., 1916). 5,800 tons. Dimensions: 367½ (*o.a.*) × 45 feet 2½ ins. × 18⅝ feet. Guns: 2—3 pdr. AA. I.H.P. 2750 = 12·7 kts. Coal: 615 tons. Cyl. boilers. Complement, 262.

*Hamburg-Amerika Liner, captured by H.M.S. *Berwick*, September, 1914.

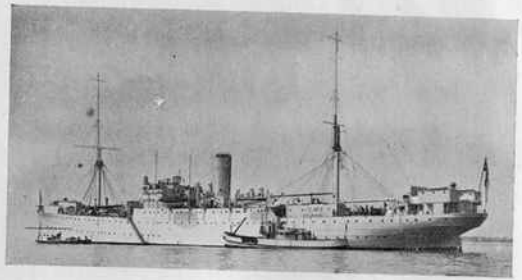
(Submarines.)



Added 1935

GREENWICH (Dobson & Co., completed by Swan Hunter. Purchased 1915). 8100 tons. Dimensions: 390 (*p.p.*), 402 (*o.a.*) × 52 × 19⅝ feet (*max.* draught). Guns: 4—4 inch, 1—3 inch AA. I.H.P. 2500 = 11 kts. Coal: 960 tons. Complement, 244. Cyl. boilers.

(Destroyers.)

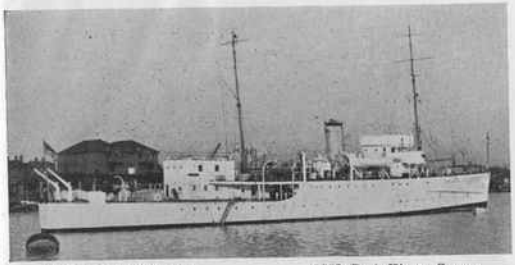


1935, *R. Perkins.*

CYCLOPS (ex-*Indrabarah*, Sir Jas. Laing & Co., 1905). 11,300 tons. Dimensions: 460 (*p.p.*), 477 (*o.a.*) × 55 × 21 ft. 2 in. Guns: 2—4 inch (mounted in bows). Machinery: Triple expansion. Designed H.P. 3500 = 13 kts. Coal capacity: 1595 tons. Complement, 266.

(Submarines.)

Note.—Depot Ship *Cochrane* (ex-*Ambrose*) is no longer in seagoing condition and has been deleted. This also applies to old depot ship *Sandhurst*.



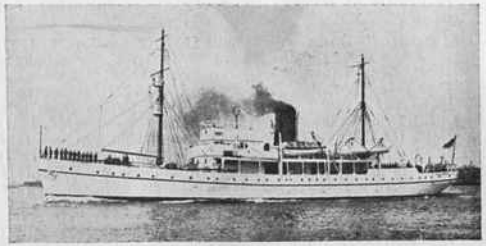
FRANKLIN (*Scott* similar) 1938, *P. A. Vicary, Cromer.*

FRANKLIN (Ailsa Shipbuilding Co., Dec. 22, 1937), **SCOTT** (Caledon Shipbuilding & Engineering Co., Ltd., Aug. 23, 1938). Displacement: 830 tons. Complement: 80. Dimensions: 230 × 33½ × 7 feet (*mean*), 7½ feet (*maximum*). No guns. Machinery: Parsons geared turbines (by Thornycroft in *Franklin*, by Parsons in *Scott*). H.P.: 1,750 = 17 kts. Boilers: 2 Admiralty 3-drum type.

Note.—These vessels are of same type as later minesweepers of *Halcyon* class, modified for surveying purposes. *Franklin* built under 1936 Estimates, *Scott* under those for 1937.

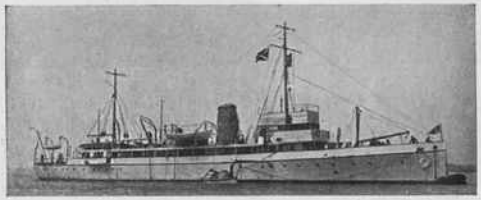
SCARBOROUGH. 1939, *R. Perkins.*

FOLKESTONE (Feb. 12, 1930), **SCARBOROUGH** (March 14, 1930). Both built by Swan Hunter Displacement: 1,045 tons. Dimensions: 250 (*pp.*), 266 (*o.a.*) × 34 × 9 feet. No guns. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 2,000 = 16 kts. 2 Admiralty 3-drum type boilers. Oil fuel: 275 tons. Built under 1928 Estimates as Escort Vessels, but later adapted for Surveying duties. *Folkestone* may still be serving in former capacity; and it is quite possible that *Scarborough* has been rearmed.



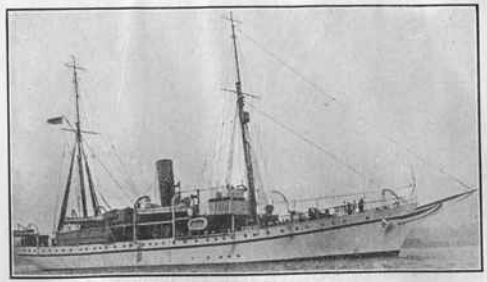
1932 *Photo, Wright & Logan.*

CHALLENGER (Chatham, June 1, 1931), built for research work by Fisheries Board, but taken over by Admiralty and employed on Surveying duties. Constructed at Chatham D.Y. Displacement: 1,140 tons, (*normal*, 1,250 tons). Complement: 84. Dimensions: 220 (*o.a.*), 200 (*pp.*) × 36 × 12½ feet (*mean*), 14½ feet (*max.*). Triple expansion engines, oil fired. H.P.: 1,200 = 12½ kts. 1 shaft. Oil fuel: 340 tons. Has the exceptional radius of 9,000 miles.



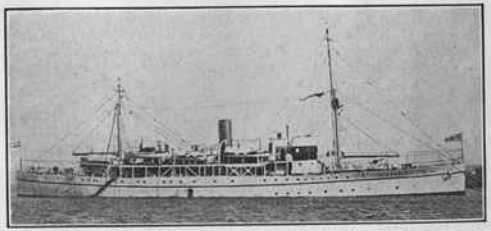
KELLETT (*Fitzroy* has taller foremast.) 1924 *Photo.*

FITZROY (ex-*Pinner*, ex-*Portreath*), (1919), by Lobnitz & Co. **KELLETT** (ex-*Uppingham*), (1919), by Simons & Co. Converted Twin Screw Minesweepers of improved "Hunt Class." 800 tons. Dimensions: 231 (*o.a.*) × 28 ft. 7½ in. × 7½ feet. Guns: 1—3 pdr. Machinery: Vertical triple expansion. 2 screws. I.H.P.: 2,200 = 16 kts. Boilers: Babcock or Yarrow. Coal: 185 tons. Complement: 87.



1924 *Photo, Abrahams, Devonport.*

ENDEAVOUR (Fairfield, 1912). 1280 tons. Dimensions: 241½ (*o.a.*) × 34 ft. 2 in. × 11¾ feet. Guns: 1—3 pdr., 1 M.G. H.P. 1100 = 13 kts. Coal: 220 tons. Complement, 139. Specially built for Hydrographic Duties.



1924 *Photo, Abrahams, Devonport.*

HERALD (ex *Merry Hampton*, 1918), built by Blyth S.B. Co. Converted Minesweeper of "24" (Racehorse) class. 1,320 tons. Dimensions: 276½ × 35 × 12 feet. Guns: 1—3 pdr. I.H.P.: 2,500=17 kts. Coal: 260 tons. Cylindrical Boilers. Complement, 132.

Note.—Was converted by Devonport D.Y., 1922-23. Sister ship *Moresby* transferred to R. Australian Navy, 1925. Will be relegated to harbour service on relief.

Photo wanted.

2 *Ardrossan Dockyard :* **ACACIA, ALMOND.**
2 *Cochrane :* **ASH, BAY** (Dec. 12, 1939).
2 *Cook, Welton & Gemmell :* **BIRCH, BLACKTHORN.**
2 *Goole S.B. & R. Co. :* **CHESTNUT, DEODAR** (June 22, 1940).
2 *A. & J. Inglis :* **ELM, FIR.**
1 *Henry Robb :* **HAZEL** (Dec. 27, 1939).
1 *Ferguson Bros. :* **MANGROVE** (Feb. 15, 1940).
2 *Hall, Russell & Co. :* **OLIVE** (Feb. 26, 1940), **PINE.**
4 *Smith's Dock Co. :* **ROWAN, WALNUT, WHITETHORN, WISTARIA** (both Nov. 10, 1939).

All ordered in July, 1939, under Estimates for that year. No particulars published, but believed to be of same general type as *Lilac* and *Alder* groups on following page. Displacement : About 600 tons. Triple expansion engines.

Machinery supplied as follows : First pair, Plenty & Son ; second and fourth pairs, Amos & Smith ; third pair, C. D. Holmes & Co. ; fifth pair, Aitchison & Blair, Ltd. ; Robb ship, White's Marine Engineering Co. Remaining seven by builders.

BASSET (Now has foretopmast). 1937, *R. Perkins*

BASSET. (Henry Robb, Ltd., Leith, Sept. 28, 1935). Displacement : 461 tons (full load, 696 tons). Complement, 15. Dimensions : 150 (*pp.*), 160½ (*o.a.*) × 27½ × 10½ feet. Guns : 1—4 inch. Reciprocating engines and cylindrical boiler. I.H.P. : 850 = 12 kts. Fuel : 180 tons coal. Used for Anti-Submarine Training.

Photo wanted

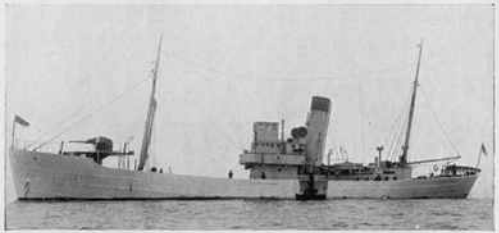
GUAVA (ex-*British Columbia*), (Richards Iron Works, Lowestoft, 1935). 134 tons *gross*. Ruston & Hornsby oil engine.

67 Trawlers were purchased under 1939 Supplementary Estimates, and many more have been taken over since. Names and brief particulars of some of those officially recorded are given below :

Arctic Ranger (501 tons gross ; built 1937), *Arsenal* (398, 1933), *Bandolero* (440, 1935), *Barnett* (482, 1937), *Bedfordshire* (443, 1935), *Bengali* (455, 1937), *Brontes* (424, 1934), *Cambridgeshire* (443, 1935), *Canadian Prince* (455, 1937), *Cape Argona* (494, 1936), *Cape Comorin* (504, 1936), *Cayton Wyke* (373, 1932), *Compton* (ex-*Fighter*) (516, 1937), *Daneman* (516, 1937), *Davy* (449, 1936), *Derby County* (399, 1933), *Drangey* (434, 1935), *Hampshire* (425, 1934), *Huddersfield Town* (399, 1933), *Istria* (409, 1933), *Kelt* (455, 1937), *Kingston Andalusite* (415, 1934), *Kingston Chrysolite* (448, 1935), *Kingston Olivine* (378, 1930), *Kirkella* (436, 1936), *Lady Beryl* (417, 1935), *Lady Elsa* (ex-*Italia Caesar*) (518, 1937), *Leeds United* (398, 1933), *Leyland* (452, 1936), *Loch Melfort* (440, 1934), *Loch Tulla* (423, 1934), *Lord Hotham* (464, 1936), *Lord Lloyd* (396, 1933), *Lord Plender* (396, 1933), *Lord Wakefield* (418, 1933), *Man o' War* (516, 1937), *Matabele* (440, 1935), *Mildenhall* (466, 1936), *Oriental Star* (427, 1934), *Pict* (462, 1936), *Quantock* (441, 1936), *Regal* (409, 1933), *St. Amandus* (400, 1933), *St. Andronicus* (399, 1933), *St. Arcadius* (403, 1933), *St. Attalus* (399, 1934), *Saon* (386, 1933), *Sindonis* (440, 1934), *Spaniard* (455, 1937), *Spurs* (399, 1933), *Stafnes* (454, 1936), *Stella Capella* (507, 1937), *Thornwick Bay* (437, 1936), *Turcoman* (455, 1937), *Vascama* (447, 1935), *Victorian* (440, 1935), *Wellard* (ex-*El Capitan*) (514, 1937), *York City* (398, 1933).

Barnett, *Matabele* and *Quantock* have probably been renamed.

Particulars of a typical Cochrane trawler (*Daneman*) : 173½ × 28⅝ × 12½ feet. Machinery : Triple expansion. I.H.P. : 1,100 = 12·5 kts.

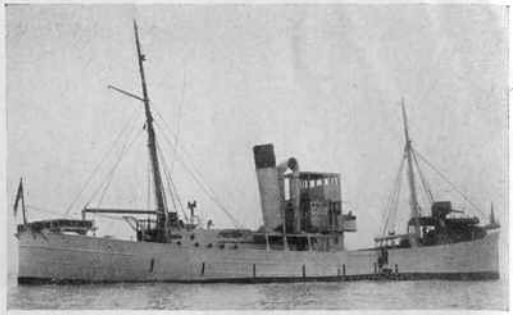


SAPPHIRE. 1936, *R. Perkins.*

5 *Smith's Dock Co., Ltd. :* **AGATE** (ex-*Mavis Rose*, 1934), **SAPPHIRE** (ex-*Mildenhall*, 1935), **TOPAZE** (ex-*Melbourne*, 1935), **TOURMALINE** (ex-*Berkshire*, 1935), **TURQUOISE** (ex-*Warwickshire*, 1935). Displacement : First ship, 627 tons ; next two, 608 tons ; last two, 641 tons. Length : 157 to 160½ feet ; beam, 26½ feet. I.H.P. : 750 to 800 = 12 kts.

2 *Cook, Welton & Gemmell :* **PEARL** (ex-*Dervish*, 1934), 649 tons. 154½ × 25½ feet. I.H.P. : 700 = 12 kts. **JASPER** (ex-*Balthasar*, 1932), 581 tons. Dimensions : 145 × 25 feet. I.H.P. : 600 = 12 kts.

All purchased in 1935. Average draught of all, about 12 feet. Guns : 1—4 inch ; also D.C. Used for Anti-Submarine training.

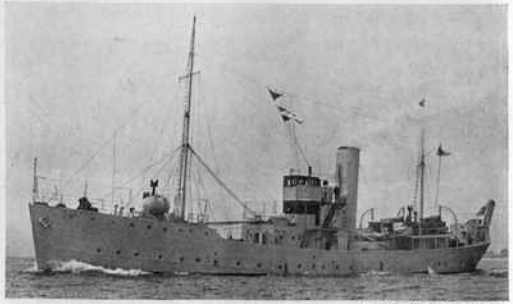


RUBY. 1936, *R. Perkins.*

2 *Cochrane & Sons :* **RUBY** (ex-*Cape Bathurst*, 1933), **CORNELIAN** (ex-*Cape Warwick*, 1933). Displacement : 568 tons. Dimensions : 152 × 25½ × 12 feet. Guns : 1—4 inch. D.C. carried. I.H.P. : 640 = 12 kts. Purchased 1935, and used for Anti-Submarine training.

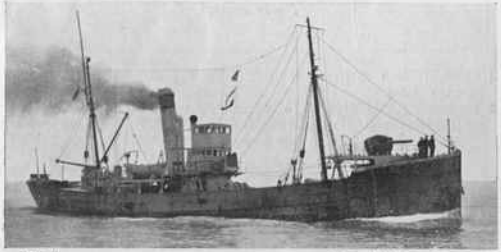
2 *Cochrane :* **AMBER** (ex-*Cape Barfleur*, 1934), **CORAL** (ex-*Cape Duner*, 1935). Displacement : 700 tons.

3 *Cook, Welton & Gemmell:* **BERYL** (ex-*Lady Adelaide*, 1935), **JADE** (ex-*Lady Lilian*, 1933), **MOONSTONE** (ex-*Lady Madeleine*, 1934). Displacement : 615 tons. Of same general type as other "Gem" trawlers, above, and particulars similar.



1937, *Wright & Logan.*

VULCAN (ex-*Mascot*, ex-*Aston Villa*), (Smith's Dock Co. Ltd., 1933). Purchased and converted, 1936. Displacement : 623 tons. Dimensions : 155 (*o.a.*) × 26½ × 12 feet. Reciprocating engines. I.H.P. : 678 = 11·5 kts. 1 cylindrical boiler. Depot Ship for Torpedo Boats.



LILAC. 1936, *Wright & Logan.*

ALDER. 1939, *R. Perkins.*

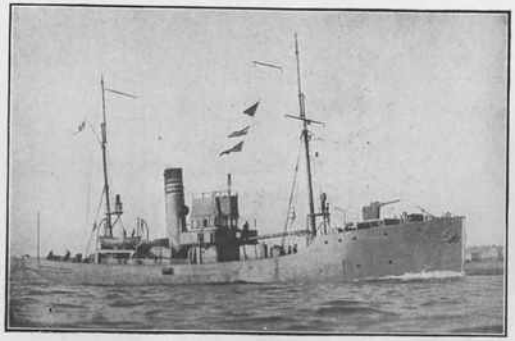
7 *Cochrane & Sons :* **LILAC** (ex-*Beachflower*, 1930), 593 tons. **SYCAMORE** (ex-*Lord Beaverbrook*, 1930). 573 tons. 150½ × 25½ × 12 feet. **MAGNOLIA** (ex-*Lord Brentford*, 1930), 557 tons. 150½ × 24½ × 12 feet. **CYPRESS** (ex-*Cape Finisterre*, 1930), 548 tons. **HAWTHORN** (ex-*Cape Guardafui*, 1930), 593 tons. **SYRINGA** (ex-*Cape Kanin*, 1930), **WILLOW** (ex-*Cape Spartivento*, 1930), both 574 tons. All four of these, 140 × 24½ × 12 feet.

4 *Cochrane :* **ALDER** (ex-*Lord Davidson*, 1929). Displacement : 560 tons. **BEECH** (ex-*Lord Dawson*, 1929). 540 tons. **BERBERIS** (ex-*Lord Hewart*, 1928), 540 tons. **HORNBEAM** (ex-*Lord Trent*, 1929). 530 tons.

3 *Cook, Welton & Gemmell :* **CEDAR** (ex-*Arab*, 1933). 649 tons. 154½ × 25½ × 12 feet. **HOLLY** (ex-*Kingston Coral*, 1930). **LAUREL** (ex-*Kingston Cyanite*, 1930). Both 590 tons. 140½ × 24½ × 11½ feet.

4 *Cook, Welton & Gemmell :* **LARCH** (ex-*St. Alexandra*, 1928), **MAPLE** (ex-*St. Gerontius*, 1929), both 550 tons. **OAK** (ex-*St. Romanus*, 1928), 545 tons. **REDWOOD** (ex-*St. Rose*, 1928), 540 tons.

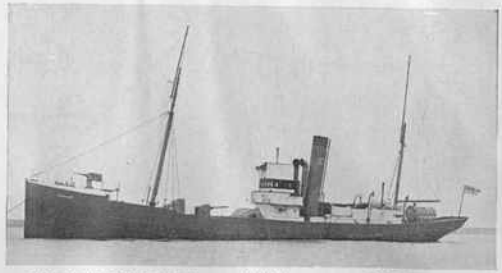
In all : Guns : 1—4 inch AA. D.C. carried. I.H.P. : 600 = 11 kts. (except *Cedar*, 700 = 11·5 kts.). All purchased 1935, or since, and used for Minesweeping training.



"DEE" TYPE. 1926 *Photo, Gieves Ltd., Portsmouth.*

DEE (ex-*T* 16, ex-*Battleaxe*). **KENNET** (ex-*T* 17, ex-*Iceaxe*).
GARRY (ex-*T* 13, ex-*Goldaxe*). **LIFFEY** (ex-*T* 14, ex-*Stoneaxe*).

Ex-Russian Trawlers, designed and built by Smiths Dock Co., Ltd., 1916. Displacement : 393, 417, 407, and 373 tons, respectively. Dimensions : 130 (*pp.*) × 23½ × 13½ feet. I.H.P. : 525 = 10·5 kts. Coal : 140 tons.



EXCELLENT (Details of each vary slightly). 1935, *R. Perkins.*

Blackwater	(ex-*William Inwood*).	***Foyle***	(ex-*Sonneblom*, ex-*Foyle*, ex-*John Edmund*).
****Boyne***	(ex-*William Jones*).		
****Colne***	(ex-*Isaac Chant*).		
****Doon***	(ex-*Fraser Evans*).	***Moy***	(ex-*Alexander Hills*).
Eden	(ex-*Immortelle*, ex-*Eden*, ex-*Thomas Johns*).	***Ouse***	(ex-*Andrew King*).
		Pembroke	(ex-*Stour*, ex-*Daniel Fearall.*)
Excellent	(ex-*Nith*, ex-*Andrew Jewer*).		

All belong to "Mersey" type (designed by Messrs. Cochrane & Sons, Ltd., Selby, 1917–18). All built by Messrs. Cochrane except *Colne*, by Lobnitz. Displacement : 452 to 551 tons. Dimensions : 138½ (*pp.*) × 22¾ × 13½ feet. Triple expansion engines. 1 boiler. I.H.P. : 600 = 11 kts. Coal : 204 tons. *Moy*, *Ouse*, are employed on Fleet Target Service. Those marked * are rated as "Fishery Protection Trawlers," have black topped funnels, and carry 1—3 inch AA. Others mount 2—3 inch AA. *Pembroke* has 2—3 pdr.

Corvettes.

Photo wanted.

"FLOWER" CLASS

56 Corvettes (originally described as patrol vessels of whaler design) were laid down in the summer of 1939 under Supplementary Estimates for that year, and 10 more were subsequently laid down in Canada. Others are believed to have been ordered since. Of the first batch, it has been officially announced that 2 vessels were built by each of the following : Blyth D.D. & S.B. Co. ; Cook, Welton and Gemmell ; Fleming & Ferguson ; A. & J. Inglis ; Henry Robb ; Wm. Simons & Co. ; Smith's Dock Co. ; and 3 vessels each by Geo. Brown & Co. ; Grangemouth Dockyard Co. ; Charles Hill & Sons ; and John Lewis & Sons. Only name that has been officially mentioned is FLEUR DE LYS.

PLANTAGENET. 1939, *courtesy Messrs. Lobnitz & Co., Ltd. (Builders).*

(BAYONET CLASS—11 SHIPS)

7 *Blyth DD. & S.B. Co.:* **BAYONET** (ex-*Barnehurst*), (Nov. 8, 1938), **FALCONET** (ex-*Barnham*), (Dec. 5, 1938), **BOWNET** (Jan. 19, 1939), **BURGONET** (March 14, 1939), **DRAGONET** (June 2, 1939), **SIGNET** (May 3, 1939), **SONNET** (1939).

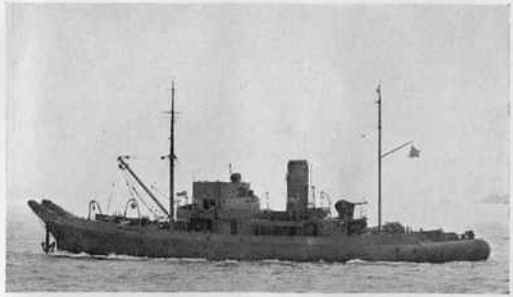
2 *Smith's Dock Co.:* **MAGNET** (ex-*Barnsley*), (Nov. 22, 1938), **MARTINET** (ex-*Barnstone*), (Dec. 8, 1938).

2 *Lobnitz:* **PLANET** (ex-*Barnwell*), (Dec. 26, 1938), **PLANTAGENET** (ex-*Barwood*), (Feb. 23, 1939).

Displacement: 530 tons. Dimensions: 135 × 30½ × 9 feet. Guns: 1—3 inch AA. Machinery: Triple expansion (By North-Eastern Marine Engineering Co., Ltd. in *Bownet, Burgonet, Dragonet;* by White's Marine Engineering Co., Ltd. in *Signet, Sonnet*). I.H.P.: 850 = 11·5 kts. Cylindrical boilers. Authorised under 1937 and 1938 estimates.

1937, *courtesy D. Cochrane, Esq.*

DUNNET. (Lytham S. & E. Co., Ltd., August 5, 1936). Displacement: 385 tons. Complement, 15. Dimensions: 125 (*pp.*), 134½ (*o.a.*) × 26½ × 9 feet (*max.*). Guns: 1—3 inch. Reciprocating engines and cylindrical boiler. I.H.P.: 350 = 10 kts. Fuel: 80 tons coal.



BARRAGE. 1938, *Wright & Logan.*

(Barricade Class—25 ships).

9 *Blyth D.D. & S.B. Co.:* **BARBARIAN** (Oct. 21, 1937), **BARBETTE** (Dec. 15, 1937), **BARBICAN** (March 14, 1938), **BARBROOK** (May 28, 1938), **BARCASTLE** (July 23, 1938), **BARNEHURST**, **BARNSTONE** and 2 more (Names not reported). (Machinery by White's Marine Engineering Co., Ltd. in *Barbrook* and *Barcastle*, by North Eastern Marine Engineering Co., Ltd. in others).

2 *Hall, Russell & Co. (Aberdeen):* **BARRAGE** (Dec. 2, 1937), **BARRANCA** (Jan. 18, 1938).

2 *Charles Hill & Co. (Bristol):* **BARRICADE** (ex-*Ebgate*), (Feb. 7, 1938), **BARRIER** (ex-*Bargate*), (May 17, 1938).

2 *Goole S.B. & Repair Co.:* **BARCOMBE** (July 28, 1938), **BARCROFT.** Machinery by Amos & Smith, Ltd.

2 *John Lewis & Sons (Aberdeen):* **BARFAIR** (May 31, 1938), **BARFIELD** (July 28, 1938).

6 *Lobnitz:* **BARLANE** (June 27, 1938), **BARLIGHT** (Sept. 10, 1938), **BARNDALE** (Nov. 30, 1939), **BARNWELL** (Feb. 13, 1940), and 2 more (Names not reported).

2 *Simons:* **BARLOW** (Aug. 26, 1938), **BARMOUTH** (Oct. 11, 1938).

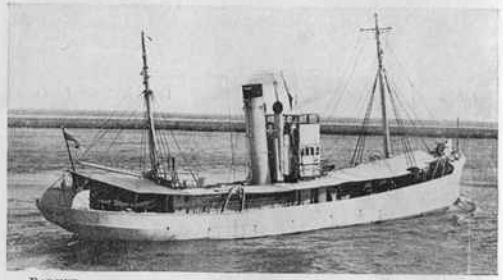
Built under 1935, 1936, 1937 and 1939 Estimates. Displacement: 730 tons. Dimensions: 150 (*pp.*), 173¾ (*o.a.*) × 32¼ × 9½ feet. Guns: 1—3 inch AA. Machinery: Triple expansion. I.H.P.: 850 = 11·75 kts. 2 boilers. Complement: 32.

Note.—Other boom defence craft which appear in the Navy List are without motive power.

Photo wanted

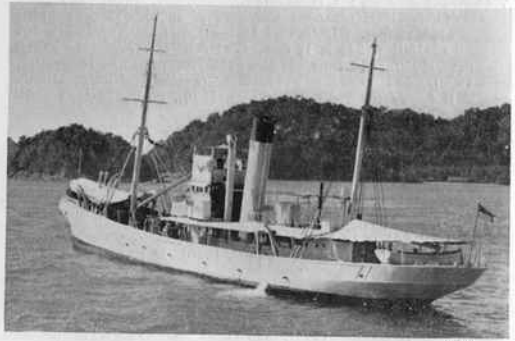
1 *Cook, Welton & Gemmell:* **JENNET** (ex-*Bunsen*, 1926), 358 tons *gross.*

3 *Cochrane:* **PUNNET** (ex-*Cape Matapan*, 1925), **RENNET** (ex-*Deepdale Wyke*, 1928), **QUANNET** (ex-*Dairycoates*, 1926). 321, 335 and 350 tons *gross*, respectively.



BARNET. 1934, *Grand Studio, Malta.*

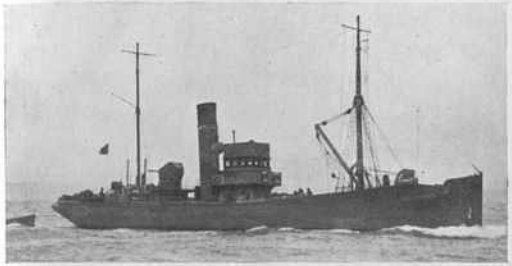
BARNET (ex-*Earl Haig*). (Cochrane & Sons, Selby, 1919.) Purchased and converted, 1934. Displacement: 423 tons. Complement: 15. Dimensions: 138½ (*o.a.*) × 23¾ × 11¼ feet. Guns: 1—3 inch. Reciprocating engines and cylindrical boiler. I.H.P.: 600 = 11 kts. Fuel: 175 tons coal. Boom working vessel.



1937.

FASTNET (ex-*Frobisher*). (Goole S.B. and Repairing Co., 1919). Purchased and converted, 1933. Displacement: 444 tons. Complement: 15. Dimensions: 147¾ (*o.a.*) × 23¾ × 12 feet. Guns: 1—3 inch. Reciprocating engines and cylindrical boiler. I.H.P.: 600 = 11 kts. Fuel: 175 tons coal. Boom working vessel.

Boom Defence Vessels—*continued.*



1939, *Wright & Logan.*

CORONET (ex-*Robert Cloughton*) (1917). Ex-Trawler, designed by Smiths Dock Co., Ltd., and built by Bow, McLachlan & Co., Ltd. Displacement: 429 tons. Dimensions: 125 (*p.p.*) × 22½ × 12½ feet. I.H.P. 480 = 10·5 kts. Coal: 164 tons. Boom working vessel.

25 Drifters.

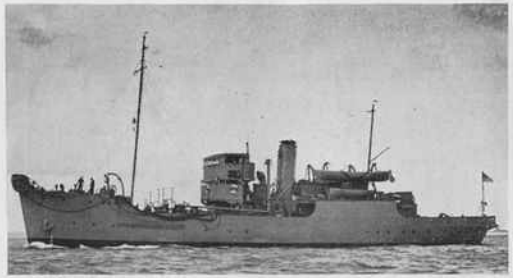
SEABREEZE. 1937, *R. Perkins.*

(All built of steel except those marked with an asterisk, which are believed to be wood. Those marked † are on Harbour Service List).

Cascade, Cloud, Cold Snap, Crescent Moon, *Ebbtide (ex-*C.D. 1*), ***Eddy, *Fumarole, Halo, Harmattan, Horizon, Indian Summer, Landfall, Leeward, Lunar Bow, Mist, Noontide, †Onyx*** (ex-*C.D. 32*), ***†Raleigh*** (ex-*Glitter*), ***Seabreeze, Sheen, Shower, Sundown, Sunset, Whirlpool.*** Also ***Brine*** (Purchased, 1938).

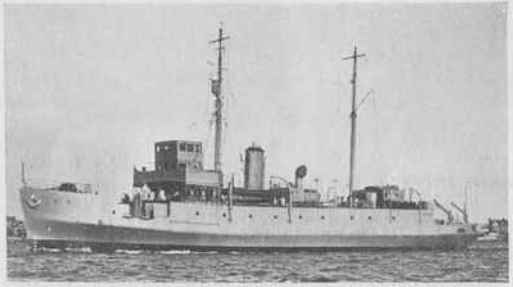
Displacement: 199 tons (except ex-*C.D.* type, 150 tons). Dimensions: 87 × 19¾ × 9½ feet (except *C.D.* type, 86 × 18⅝ × 9 feet). I.H.P.: 270 = 9 kts. Guns: Usually 1—6 pdr. or 3 pdr. (Not mounted in peace time). Coal: 31–39 tons.

Coastal Minelayers.



LINNET. 1938, *Wright & Logan.*

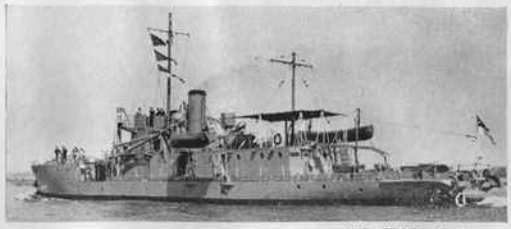
LINNET (May 3, 1938), **REDSTART** (May 3, 1938), **RINGDOVE** (June 15, 1938). First built by Ardrossan Dockyard Co., Ltd. under 1936 Estimates, others by Henry Robb Ltd. under 1937 Estimates. Displacement: 498 tons. Complement: 24. Dimensions: 145 (*pp.*), 163¾ (*o.a.*) × 27½ × 8 feet. No guns. Machinery: Triple expansion, by Ferguson Bros. in *Linnet*, by White's Marine Engineering Co., Ltd. in others. I.H.P.: 400 = 10·5 kts. Two are Minelaying Tenders to *Vernon*, but *Redstart* was on China Station.



1937, *Wright & Logan*

PLOVER (Denny, June 8, 1937). Displacement: 805 tons. Complement: 69. Dimensions: 180 (*pp.*), 195½ (*o.a.*) × 37½ × 8½ feet. Guns: 2 M.G. Machinery: Triple expansion. I.H.P.: 1,400 = 14·75 kts. Laid down Oct. 7, 1936, and completed in Sept., 1937. Minelaying Tender to *Vernon*.

Coastal Minelayers—*continued.*



1937, *Wright & Logan.*

MEDUSA (ex-M 29), **MELPOMENE** (ex-M 31), (Workman Clark.)

Launched and completed 1915. 535 tons. Complement: 52. Dimensions: 177 (*o.a.*) × 31 × 6¾ feet. Carry 52 mines. Machinery: Triple expansion. 2 shafts. Boilers: Yarrow. Oil fuel: 45 tons. H.P.: 400 = 10 kts.

Sister ship **MINERVA** still exists, though on disposal list.

Cable Vessels.

1 Cable Vessel was to have been built under 1939 Programme.

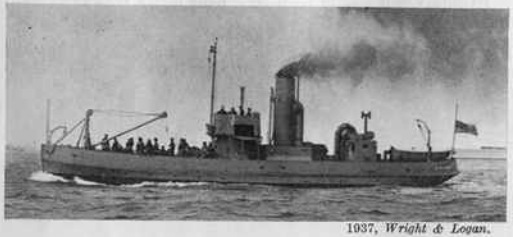
1938, *Wright & Logan.*

LASSO (March 17, 1938). Built by Messrs. Thornycroft under 1936 Estimates. Displacement: 903 tons. Dimensions: 180 (*pp.*), 205 (*o.a.*) × 35½ × 9¾ feet. No guns. Machinery: Triple expansion. I.H.P.: 1,100 = 13 kts. Tender to Anti-Submarine School, Portland.

KILMUN (1919). Built by Smith's Dock Co., Ltd. Displacement: 890 tons. Dimensions: 170 (*pp.*), 182 (*o.a.*) × 30 × 11¾ feet. No guns. Machinery: Triple expansion. I.H.P.: 700 = 10 kts. Boilers: Cylindrical. Coal: 330 tons. Tender to *Defiance* Establishment, Devonport.

1939, *courtesy Messrs. Vosper, Ltd.*

BLOODHOUND (Vosper, 1937). Displacement: 35 tons. Complement: 5. Dimensions: 68 × 19 × 3 feet. 1—21 inch torpedo tube (3 torpedoes carried). Lorraine-Orion engines. H.P.: 1,600 = 25 kts. Tender to *Vernon*, used for torpedo practice. Built under 1937 Estimates.



1937, *Wright & Logan.*

DWARF. (1936). Built by Philip & Son, Ltd., Dartmouth. Displacement: 172 tons. Dimensions: 83½ (*pp.*), 91 (*o.a.*) × 19 × 6½ feet (*mean*), 7 feet (*max.*). No guns. 2 sets reciprocating engines and 1 cylindrical boiler. I.H.P.: 350 = 9·25 kts. Fuel: 16 tons coal. Tender to Submarine Headquarters, Portsmouth.

REDWING. 1934 *Photo, R. Perkins.*

ELFIN. 1935, *R. Perkins.*

REDWING (Oct. 19, 1933), **ELFIN** (Nov. 20, 1933). Both built by J. Samuel White & Co., Ltd., Cowes. Displacement: 225 and 222 tons respectively. Complement: 12. Dimensions: *Redwing*, 112 (*o.a.*) × 25 × 6⅔ feet; *Elfin*, 108 (*o.a.*) × 25 × 6½ feet. No guns. 2 sets reciprocating engines and 1 cylindrical boiler. I.H.P.: 250 = 9·5 kts. Tenders to Torpedo School, Devonport, and Submarine Depot, Portland, respectively.

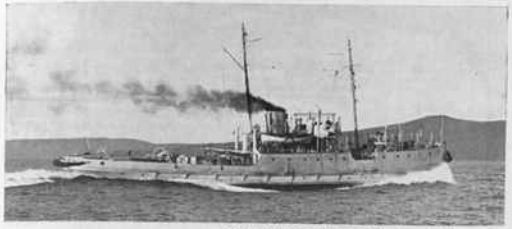
NIGHTINGALE. 1931 *Photo, Cribb.*

NIGHTINGALE (Sept. 30, 1931), **VERNON** (ex-*Skylark*), (Nov. 15, 1932). Both built at Portsmouth. Displacement: 298 and 302 tons, respectively. Complement: 15. Dimensions: *Nightingale*, 110 (*o.a.*) × 24½ × 7½ feet.; *Vernon*, 106½ (*o.a.*) × 24½ × 7½ feet. No guns. 2 sets reciprocating engines and 1 cylindrical boiler. I.H.P.: 400 = 10 kts. Fuel: 15 tons coal. Mining tenders to *Vernon* Establishment.

Armed Merchant Vessels

It has been officially stated that the Royal Navy has been strengthened by the addition of over 50 armed merchant cruisers and "more than 1,500 minor war vessels and auxiliary craft," such as trawlers, drifters, yachts, etc.

23 Fleet Tugs.



1938, *courtesy Messrs. Fleming & Ferguson.*

BRIGAND (July 8, 1937), **BUCCANEER** (Sept. 7, 1937), **BANDIT** (Feb. 15, 1938), **MARAUDER** (Nov. 9, 1938). **FREEBOOTER** (1939). Built by Fleming & Ferguson, Paisley, under 1936, 1937, 1938 and 1939 Estimates. Displacement: 840 tons. Complement: 36. Dimensions: 165 (*pp.*), 174 (*o.a.*) × 32 × 10¾ feet. Guns: 1—3 inch AA. Triple expansion engines. 2 shafts. Designed H.P: 3,000 = 16 kts.

Notes.—Fitted for salvage work, and have towing winches for work with battle practice targets.

ROYSTERER. 1929 *Photo, N. T. Tangye, Esq.*

(*Resolve, Retort,* no Fx. deck).

5 ROLLICKER TYPE.

RESOLVE, RESPOND (both by Ayrshire D.Y. Co.), **RETORT** (Day, Summers & Co.), **ROYSTERER** (Thornycroft), **ROLLICKER** (Ferguson Bros.). Built 1918–19. Displacement: 1,400 tons. Dimensions: 175 × 34 × 17, (*maximum* draught). 2 screws. I.H.P.: 2,400 = 14 kts. Complement: 24.

Notes.—All on Harbour Service List.
Rollicker was transferred to Nigerian Government, but was reacquired by Admiralty in March, 1934.

Fleet Tugs—*continued*

ST. ISSEY. 1929 *Photo, N. T. Tangye, Esq.*

13 "RESCUE" TYPE (SAINT CLASS).

ST. ABBS, ST. BLAZEY, ST. BREOCK, ST. CLEARS, ST. CYRUS, ST. DAY, ST. DOGMAEL, ST. ISSEY, ST. JUST, ST. MARTIN, ST. MELLONS, ST. MONANCE, ST. OMAR. Built by various yards, 1918–19. Displacement: 820 tons. Dimensions: 135½ × 29 × 14½ feet (*maximum* draught), 1 screw. I.H.P.: 1,250 = 12 kts. Coal: 240 tons. Complement: 21.

Note.—*St. Cyrus, St. Issey, St. Just, St. Martin,* employed for Target Towing, others on Harbour Service List, with exception of *St. Breock*. 2 tugs of this type, *Toia* (ex-*St. Boniface*) and *Ocean Eagle* (ex-*St. Arvans*), transferred to New Zealand and Canadian Governments, respectively. Others will be found in Brazilian, Iraqi and Spanish Navies, and in commercial harbours such as Shanghai, Sydney, Fremantle, etc.

Petrol Carriers.

PETRONEL. 1934 *Photo, R. Perkins.*

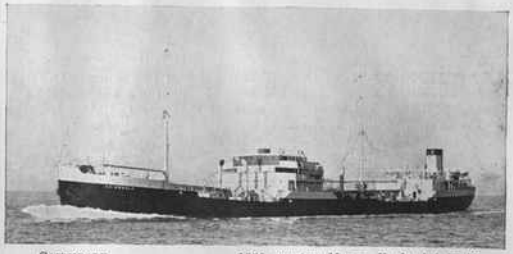
PETROBUS, PETRELLA, (Dunlop, Bremner, 1918). Displacement: 1024 tons. Dimensions: 164 × 28 × 11¼ feet. I.H.P. 500 = 9-10 kts. Deadweight capacity: 300 tons. Own oil: 50 tons. Cylindrical boilers. Complement, 16.

Water Carrier.

PETRONEL. Sister ship to *Petrobus* and *Petrella.*

Oilers.

6 Oilers of 3,500 tons were authorised to be built under 1939 Estimates.



CAIRNDALE. 1939, *courtesy Messrs. Harland & Wolff.*

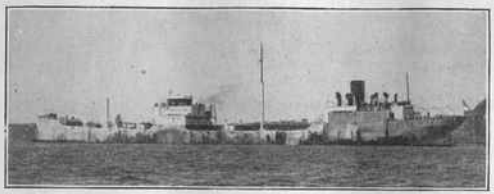
CAIRNDALE (ex-*Erato*, October 25, 1938), **CEDARDALE** (March 25, 1939). Built by Harland & Wolff and Blythswood S.B. Co., Ltd., respectively. Displacement: 17,000 tons. Complement: 40. Dimensions: 460 (*pp.*), 483 (*o.a.*) × 59 × 27½ feet (*mean*). Machinery: Burmeister & Wain 4-cycle Diesels. B.H.P.: 3,500 = 11·5 kts. Deadweight capacity: 12,000 tons.

BISHOPDALE. 1937, *courtesy Builders.*

2 *Swan Hunter:* **ABBEYDALE** (Dec. 28, 1936), **ARNDALE** (Aug. 5, 1937). Displacement: 17,210 tons.
1 *Cammell Laird:* **ALDERSDALE** (July 7, 1937). 17,231 tons.
1 *Lithgows:* **BISHOPDALE** (March 31, 1937). 17,357 tons.
2 *Harland & Wolff* (Govan): **BOARDALE** (April 22, 1937), **BROOMDALE** (Sept. 2, 1937). 17,338 tons.
Following applies to all 6: Complement: 40. Dimensions: 464¼ (*pp.*), 481½ (*o.a.*) × 62 × 27½ feet (*mean*). Machinery: Doxford Diesels in first 3, Burmeister & Wain in others. B.H.P.: 4,000 = 11·5 kts. Deadweight capacity: 11,650 tons. Own fuel: 850 tons.

1939, *Wright & Logan.*

OLEANDER (Pembroke D.Y., 1922), **OLNA** (Devonport D.Y., 1921). Displacement: 15,350 and 15,220 tons. Dimensions: 430 × 57 × 26¼ feet. Deadweight capacity: 10,000 tons. Triple expansion engines and cylindrical boilers. I.H.P.: 3,250 = 11 kts.

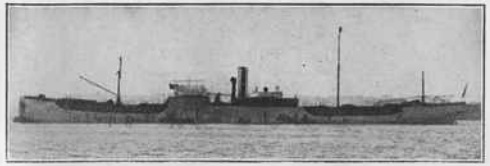


OLCADES. *Photo, Abrahams, Devonport (added 1927).*

OLCADES (ex-*British Beacon*), **OLIGARCH** (ex-*British Lantern*), (both Workman Clark, 1918), **OLYNTHUS** (ex-*British Star*), (Swan Hunter, 1917). Displacement: 15,030 tons (*Olcades*) and 15,003 tons (other two ships). Dimensions: 430 × 57 × 26¼ feet. Deadweight capacity: 9,000 tons. Triple expansion engines and cylindrical boilers. I.H.P.: 3,200 = 11 kts.

Added 1935, Wright & Logan.

OLWEN (ex-*British Light*), (Palmers, 1917). Displacement: 13,690 tons. Dimensions: 419½ × 54½ × 26 feet. Deadweight capacity: 8,000 tons. Triple expansion engines and cylindrical boilers. I.H.P.: 3,150 = 10 kts.



WAR BAHADUR. *Photo, Abrahams, Devonport (added 1927).*

(Rigs vary considerably in these ships; but all except *War Krishna* are more or less similar to above.)

WAR KRISHNA. *Photo, Abrahams, Devonport (added 1927).*

WAR AFRIDI (R. Duncan & Co., 1920), **WAR BAHADUR** (1918), **WAR MEHTAR** (1920), (both Armstrong); **WAR BRAHMIN** (1920), **WAR DIWAN** (1919), **WAR PINDARI** (1920), all three Lithgows; **WAR BHARATA** (1920), **WAR NAWAB** (1919), **WAR NIZAM** (1918), **WAR SUDRA** (1920), all four Palmers; **WAR HINDOO** (Hamilton, 1919); **WAR KRISHNA** (Swan Hunter, 1919); **WAR PATHAN** (1919), **WAR SIRDAR** (1920), both Sir J. Laing & Sons. Displacement: from 11,660 to 11,681 tons. Dimensions: 400 × 52½ × 25⅝ feet. Deadweight capacities vary from 6,300 tons (*War Pindari*) to 8,100 tons (*War Bahadur*). Triple expansion engines and cylindrical boilers. I.H.P.: 3,000 = 10 kts.

LEAF Type. *Photo added 1927.*

APPLELEAF (ex-*Texol*) (Workman Clark), **CHERRYLEAF** (Sir R. Dixon & Co.), **PLUMLEAF** (ex-*Trinol*) (Swan Hunter), **BRAMBLELEAF** (Lithgows), **ORANGELEAF** (J. L. Thompson & Sons), **PEARLEAF** (W. Gray & Co.). All launched 1917. Displacements: from 12,270 to 12,370 tons. Dimensions: 405 × 54½ × 27½ feet. Triple expansion engines and cylindrical boilers. I.H.P.: 6,750 = 14 kts. Deadweight capacity: First three, 5,400 tons; second three, 5,000 tons.

1920 *Photo, Coates, Harwich.*

MIXOL (Caledon S. B. & Eng. Co., 1916). **THERMOL** (Greenock D.Y. Co., 1916). 4326 tons. Dimensions: 270 × 38½ × 20½ feet. I.H.P. 1200 = 11 kts. Oil: 150 tons. Deadweight capacity: 2000 tons.

CELEROL. 1938, *R. Perkins.*

BELGOL (Irvine's S.B. & D.D. Co.), **CELEROL** (Short Bros.), **FORTOL** (McMillan), **PRESTOL** (Napier & Miller), **RAPIDOL** (W. Gray), **SLAVOL**, (Greenock D.Y. Co.). All launched 1917. Displacements: from 5,049 to 5,600 tons. Dimensions: 335 × 41½ × 20½ feet. I.H.P.: 3,375 = 14 kts. Own Oil: 300 tons. Cylindrical boilers. Complement: 39. Deadweight capacity: 2,000 tons.

Oilers—*continued.*

MONTENOL. 1939, *P. A. Vicary.*

FRANCOL (Earles S.B. Co.), **MONTENOL** (W. Gray), **SERBOL** (Caledon S.B. Co.) Displacements: 5,620, 5,049 and 5,600 tons, respectively. Other details as *Belgol* on preceding page. All launched 1917.

ELMOL. 1935, *R. Perkins.*

BIRCHOL, BOXOL (Barclay, Curle), **EBONOL** (Clyde S.B. Co.), **ELDEROL, ELMOL** (Swan Hunter), **LARCHOL, LIMOL** (Lobnitz), **HICKOROL** (McMillan). (All 1917). Displacements: from 2,365 to 2,410 tons. Dimensions: 220 × 34⅜ × 13½ feet. Triple expansion engines and cylindrical boilers. I.H P. 700 = 9 kts. Own oil: 40 tons. Complement, 19. Deadweight capacity: 1000 tons.

DISTOL (W. Dobson & Co.), **PHILOL, SCOTOL** (Tyne Iron S.B. Co.), **KIMMEROL, VISCOL** (Craig, Taylor). (All 1916). Displacements: from 2,200 to 2,400 tons. Dimensions: 220 × 34⅜ × 12½ feet, otherwise as *Elmol* type, above.

Fleet Supply Ship.

1934 *Official.*

RELIANT (ex-*London Importer*). (Purchased, March, 1933.) Built by Furness Shipbuilding Co., 1923. Displacement: 17,000 tons. Gross tonnage: 7,938. Dimensions: 450½ (*p.p.*), 471½ (*o.a.*) × 58 × 30 feet (*max.*). 2 Brown-Curtis geared turbines. S.H.P.: 5,000 = 14 kts. 4 cylindrical boilers, 190 lbs. working pressure. Oil fuel: 2,170 tons.

Store Carriers.

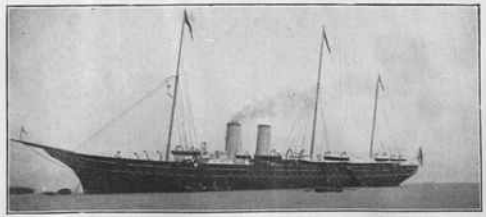
ROBERT DUNDAS (July 28, 1938), **ROBERT MIDDLETON** (June 29, 1938). Both built by Grangemouth Dockyard Co., Ltd. Displacement: 900 tons. Complement: 17. Dimensions: 210 × 35 × 13½ feet (*mean*). Machinery: Atlas Polar Diesel by British Auxiliaries Ltd., Govan. 1 shaft. B.H.P.: 960 = 10·5 kts. Fuel: 60 tons. Deadweight capacity: 1,100 tons.

BACCHUS. 1936, *courtesy Builders.*

BACCHUS. (Caledon Shipbuilding & Engineering Co., Ltd., July 15, 1936). Displacement: 5,150 tons *standard*, 5,790 tons *full load*. Complement, 44. Dimensions: 320 (*pp.*), 337⅜ (*o.a.*) × 49 × 18 feet (*max.* draught). No guns. Machinery: Triple expansion. I.H.P.: 2,000 = 12 kts. 3 cylindrical boilers. Oil fuel: 643 tons. Equipped with distilling plant. Deadweight capacity: 3,300 tons.

Royal Yacht.

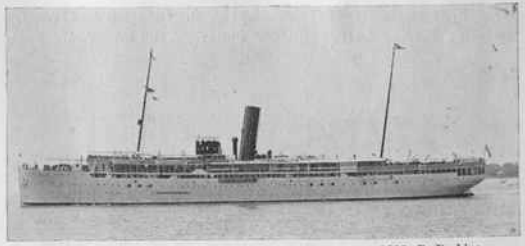
A new Royal Yacht was authorised under 1939 Navy Estimates.



VICTORIA AND ALBERT (1899). 4,700 tons. Dimensions: 380 (*p.p.*) × 40 × 18 feet (*mean* draught). Guns: 2—6 pdr. (bronze). H.P. 11,800 = 20 kts. Machinery: 2 sets triple expansion. Belleville boilers. Coal: *normal*, 350 tons; *maximum*, 2000 tons. Complement: 363.

Hospital Ships.

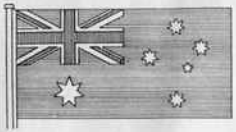
A new Hospital Ship was ordered from Messrs. Barclay, Curle & Co., Ltd. in August, 1939, under the Estimates for that year, but does not appear to have been laid down.



MAINE. 1935, *R. Perkins.*

MAINE (ex-Pacific Steam Navigation Company's s.s. *Panama*) (Fairfield Co., 1902). Purchased in 1920 and equipped for present duties. Displacement: 10,100 tons. Dimensions: 401½ × 58½ × 23½ feet. Machinery: Triple expansion. I.H.P. 4,000 = 13 kts. 2 D.E. and 2 S.E. boilers. Coal: 1,300 tons.

ROYAL AUSTRALIAN NAVY.



ENSIGN.

Australian Naval Board.

Commander-in-Chief : H. E. Brigadier-General the Rt. Hon. Lord Gowrie, V.C., G.C.M.G., C.B., D.S.O.

President : Minister of State for the Navy, Hon. W. M. Hughes.

1st Naval Member : Admiral Sir Ragnar Colvin, K.B.E., C.B.

2nd Naval Member : Commodore M. W. S. Boucher, D.S.O., R.N.

Finance and Civil Member : Mr. A. R. Nankervis.

Secretary to Naval Board : Hon. Paymaster Commander G. L. Macandie, C.B.E.

Liaison Officer, London : Paymr. Commander P. Perry, R.A.N.

Commanding Australian Squadron.

Rear-Admiral J. G. Crace.

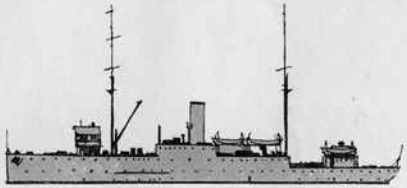
Commonwealth Navy Estimates.

1936–37, £3,237,387. 1937–38, £3,316,000. 1938–39, £5,677,300.

Seagoing Personnel (1939–40), 555 officers, 5,752 men (since doubled by calling up of Reserves).

STUART.

"V" *class.*

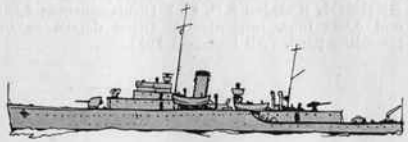


PENGUIN.

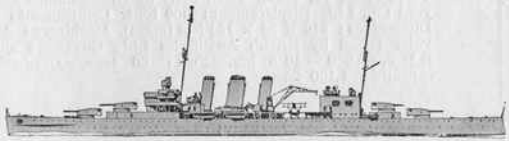
(Resembles *Bayonet* class of Royal Navy.)

KOOKABURRA.

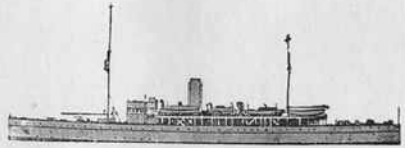
YARRA, SWAN.



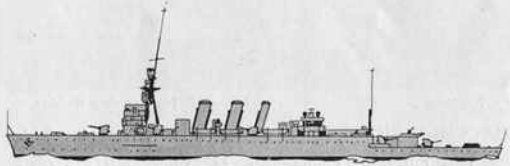
PARRAMATTA, WARREGO.



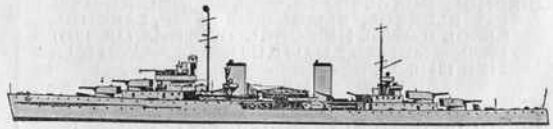
AUSTRALIA, CANBERRA.



MORESBY.



ADELAIDE.



SYDNEY, HOBART, PERTH.

AUSTRALIA (17th March, 1927). **CANBERRA** (31st May, 1927).

"Standard" displacement, 10,000 tons (as reconstructed) (13,630 *deep load*).
Complement, 679. (710 as flagship).

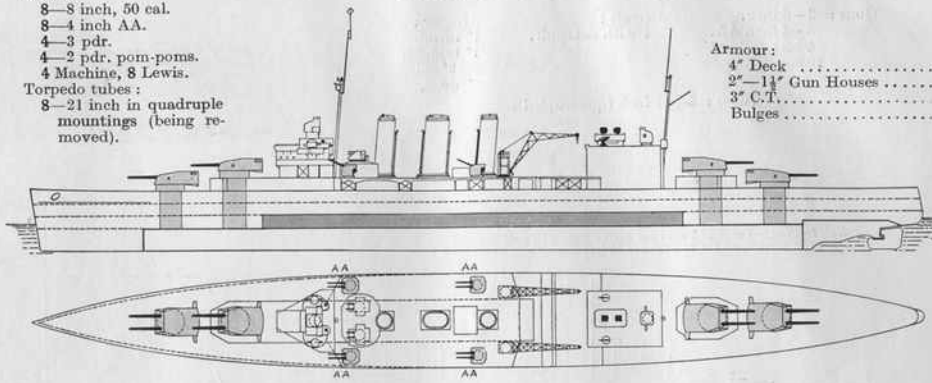
Length (*p.p.*) 590 feet, (*o.a.*) 630 feet. Beam, 68½ feet. Draught, 16¼ feet (*mean*).

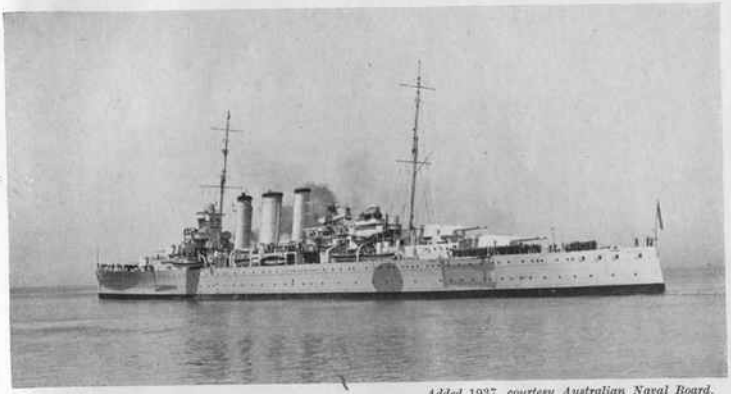
Aircraft: 1 in AUSTRALIA.

Guns:
8—8 inch, 50 cal.
8—4 inch AA.
4—3 pdr.
4—2 pdr. pom-poms.
4 Machine, 8 Lewis.

Torpedo tubes:
8—21 inch in quadruple mountings (being removed).

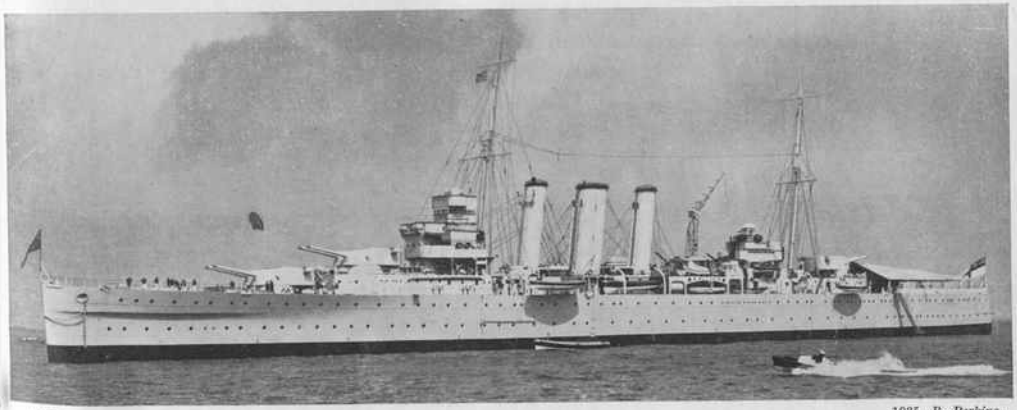
Armour:
4" Deck .....
2"—1½" Gun Houses .....
3" C.T. .....
Bulges .....





AUSTRALIA. *Added* 1937 *courtesy Australian Naval Board.*

(These photos were taken prior to reconstruction)



AUSTRALIA. 1935, *R. Perkins.*

Note.—This plan represents H.M.S. CORNWALL as reconstructed. Believed above ships have been altered on similar lines. AUSTRALIA was taken in hand for this purpose at Cockatoo Dockyard in 1938. When she was completed, CANBERRA was to have been reconstructed.

Machinery: Brown-Curtis geared turbines. 4 screws. Designed S.H.P. 80,000 = 31·5 kts. Boilers: 8 Admiralty 3-drum type. Oil fuel: 3,400 tons. Radius at full speed, 2,300 miles; at economical speed (11—14 kts.), 10,400 miles.

General Notes.—Sisters to *Kent* class, in British Navy Section. Designed by Sir E. H. Tennyson d'Eyncourt. Laid down by John Brown & Co., Ltd., Clydebank, in 1925, and completed in April and July, 1928, respectively. (See also detailed notes under British *Kent* class, which apply to these two ships.)

AUSTRALIA—Cruisers

PERTH (*ex-Amphion*), (July 27, 1934).

SYDNEY (ex-*Phaeton.*) (Sept. 22, 1934).

HOBART (ex-*Apollo*), (Oct. 9, 1934).

Displacement: 6,980, 6,830 and 7,105 tons, respectively.

Complement: 550.

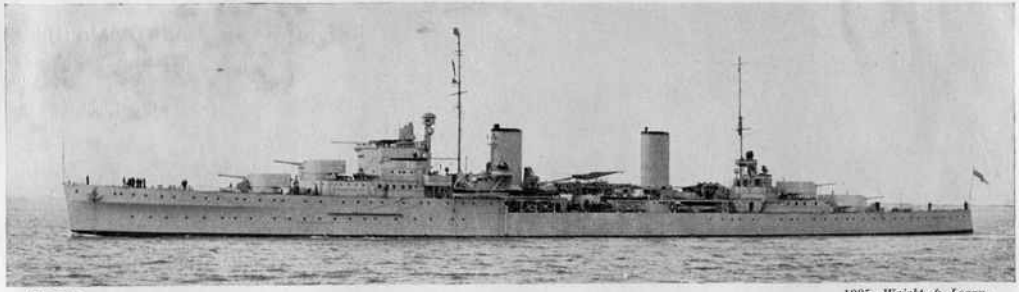
Dimensions: 530 (*p.p.*), 555 (*w.l.*) × 56¾ × 15¾ feet (*mean* draught).

Guns: 8—6 inch.
8—4 inch AA.
4—3 pdrs.
10 smaller.

Aircraft: 1 with catapult.

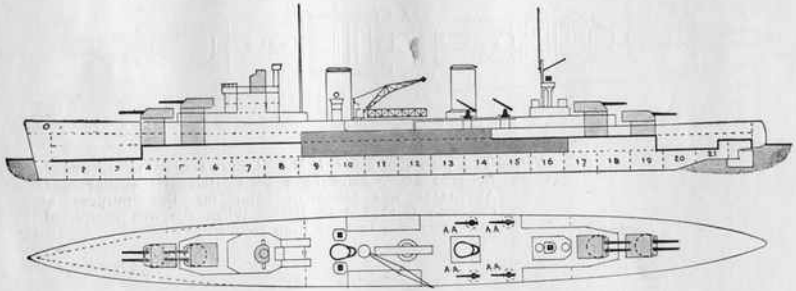
Armour:
1″ turrets.
1″ bridges.
2—3″ side.
2″ deck.

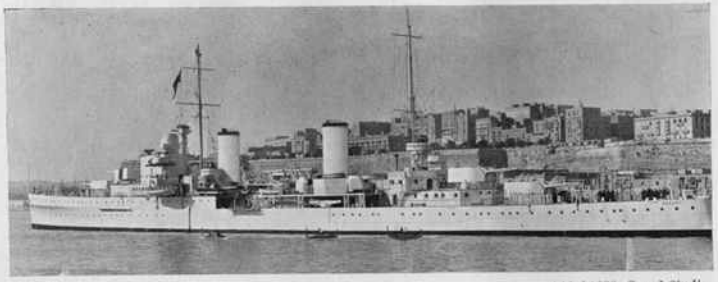
Tubes: 8—21 inch (quadrupled).



SYDNEY 1935, *Wright & Logan.*

Note to Plan.—Torpedo Tubes are above water, in position shown in photos, and AA. guns are in pairs.



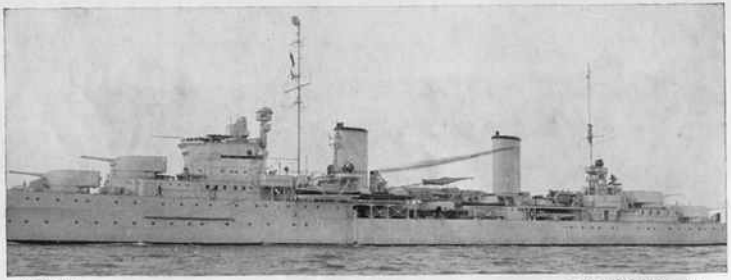


HOBART. *Added* 1939, *Grand Studio.*

Machinery: 4 Parsons geared turbines. 4 shafts. S.H.P.: 72,000 = 32·5 kts. Boilers: 4 Admiralty 3-drum type. Oil: 1,725 tons.

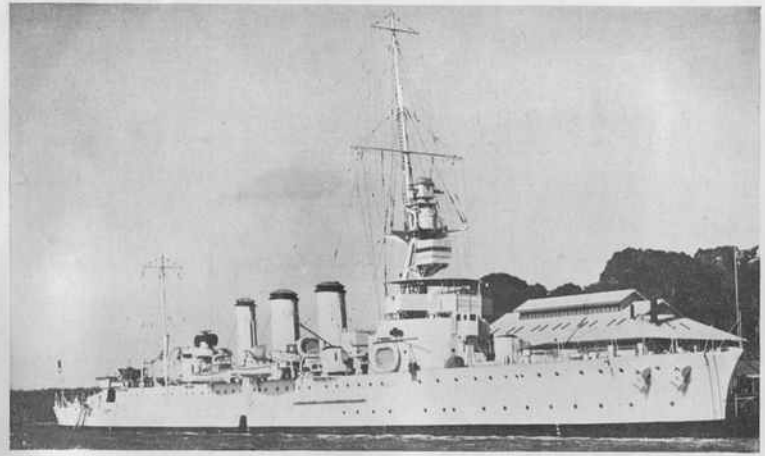
Note.—Acquired from Royal Navy in 1934 (*Sydney*), 1938 (*Hobart*) and 1939 (*Perth*). Each cost nearly £1,450,000 to build.

Est.	*Name*	*Builder*	*Machinery*	*Ordered*	*Begun*	*Completed*
1931	*Perth*	Portsmouth	Beardmore	1/12/32	26/6/33	7/36
1932	*Hobart*	Devonport	Beardmore	1/3/33	15/8/33	1/36
	Sydney	Swan Hunter	Wallsend	10/2/33	8/7/33	24/9/35



SYDNEY. 1935, *Wright & Logan.*

Cruiser.

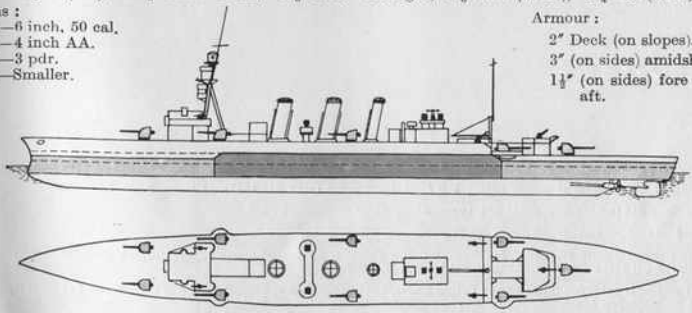


ADELAIDE. 1939, *courtesy Australian Naval Board.*

ADELAIDE (July, 1918).
Laid down at Sydney, Jan., 1915. Completed, Aug., 1922.
Displacement, 5100 tons. Complement, 470.
Length (*o.a.*), 462¾ feet. Beam, 49⅝ feet. Draught, 15⅝ feet (*mean*), 17¾—19 (*max.*).

Guns :
8—6 inch, 50 cal.
3—4 inch AA.
4—3 pdr.
12—Smaller.

Armour :
2″ Deck (on slopes).
3″ (on sides) amidships.
1½″ (on sides) fore and aft.



Machinery : Parsons turbines. Boilers : Yarrow. Designed S.H.P. : 25,000 = 25·5 kts.
Oil fuel : 1,412 tons. 2 shafts.

Notes.—Laid down at Cockatoo Dockyard, Sydney, in 1915 and completed in 1922. Cost £1,271,782 to build. Completely refitted 1938–39, when number of funnels was reduced from 4 to 3.

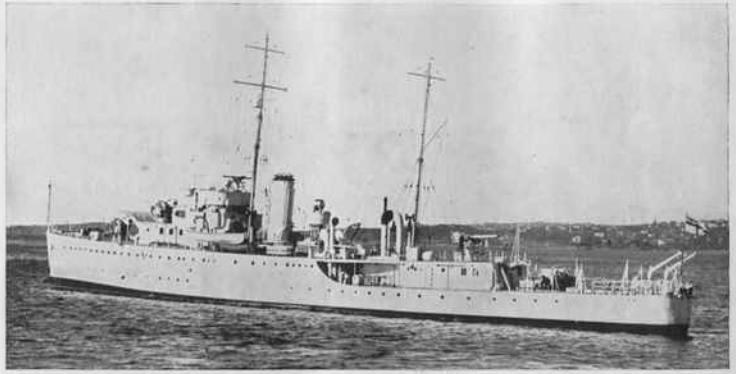
Gunnery Notes.—Electric Ammunition Hoists, dredger type. Reported 6 inch guns have up to 40° elevation.

Sloops—Escort Type.

BALLARAT (Dec. 1940), **BATHURST, LISMORE** (both 1940) and 15 more. Displacement : Over 800 tons. All built in Australia to a new design, for Anti-Submarine and Escort duties. It has been stated that 30 more are being built in Australian yards for the Royal Navy.

(*See silhouette*).

PARRAMATTA (June 18, 1939), **WARREGO** (Feb. 10, 1940). Laid down by Cockatoo Docks & Engineering Co. Pty. Ltd., 1938, for completion in 1940. Displacement : 1,060 tons. Are of an improved *Yarra* type, with 2—4 inch AA. in twin dual purpose mounting in place of forward 4-inch, and a multiple M.G. in place of second 4-inch behind blast screen, which is omitted. No 3-pdrs.



YARRA (Now mounts M.M.G. abaft S.L.). 1936, *courtesy Australian Naval Board.*

YARRA (March 28, 1935), **SWAN** (1936). Displacement : 1,060 tons. Complement, 100. Dimensions : 250 (*p.p.*), 262 (*w.l.*), 266 (*o.a.*) × 36 × 7½ feet (*mean*). Guns : 3—4 inch AA., 4—3 pdr., 6 M.G. Machinery : 2 sets Parsons geared turbines. S.H.P. : 2,000 = 16·5 kts. Boilers : 2 Admiralty 3-drum type. Oil fuel : 275 tons.

Notes.—Laid down in 1934 and 1935, respectively, at Cockatoo Dockyard, Sydney. *Yarra* completed Jan., 1936, *Swan* Jan., 1937. Generally similar to H.M.S. *Deptford* but with an additional 4 inch gun.

Destroyers.

Will resemble "Tribal" class.

Arunta (Nov. 30, 1940), ***Warramunga*** and another. Building by Cockatoo Docks & Engineering Co., Sydney, 1939–41.

Displacement: 1,870 tons. Complement: 190 (as Leaders, 219). Dimensions: 355½ × 36½ × 9 feet. Guns: 8—4·7 inch, 7 smaller. Tubes: 4—21 inch. Machinery: Parsons geared turbines. S.H.P.: 44,000 = 36·5 kts. Boilers: 3 Admiralty 3-drum type.

Added 1937, *courtesy Australian Naval Board.*

Stuart (Hawthorn Leslie, Aug. 22, 1918). (Rated as Flotilla Leader).

Displacement: 1530 tons. Dimensions: 332½ (*o.a.*) × 31¾ × 12¼ feet (*max.* draught). Complement: 183.

Guns: 5—4·7 inch, 1—3 inch AA., 7 smaller. Tubes: 6—21 inch.

Machinery: Brown-Curtis all-geared turbines. S.H.P. 40,000 = 36·5 kts. Yarrow small tube boilers. Oil: 504 tons. Transferred to R.A.N. 1932.

Destroyers—*continued.*

4 "W" and "V" type.

VENDETTA. *Added* 1937 *courtesy Australian Naval Board.*

VAMPIRE.

1 *Palmer:* ***Waterhen*** (March 26, 1918); 1 *Stephen:* ***Voyager*** (May 8, 1918). Displacement: 1100 tons.

1 *Fairfield:* ***Vendetta*** (Sept. 3, 1917); 1 *White:* ***Vampire*** (May 21, 1917). Displacement, 1,090 tons.

Dimensions: 312 (*o.a.*) × 29½ × 10½ feet (*mean* draught). Complement: 134.

Guns: 4—4 inch, 5 smaller. Tubes: 6—21 inch.

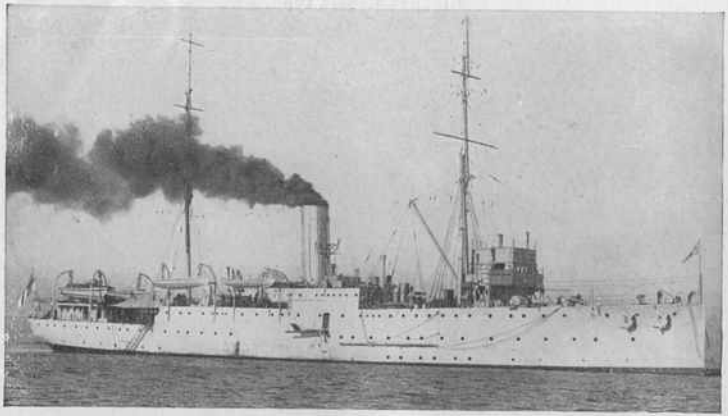
Machinery: Brown-Curtis all-geared turbines. S.H.P.: 27,000 = 34 kts. Yarrow boilers (except *Vampire*, White-Forster). Oil fuel: 360 tons. Transferred to R.A.N. 1932.

Notes.—Vampire is equipped internally as flotilla leader, having been so employed during the War, and has recently been so employed again.

Torpedo Boats.

12 Motor Torpedo Boats were laid down in Australia during 1939–40.

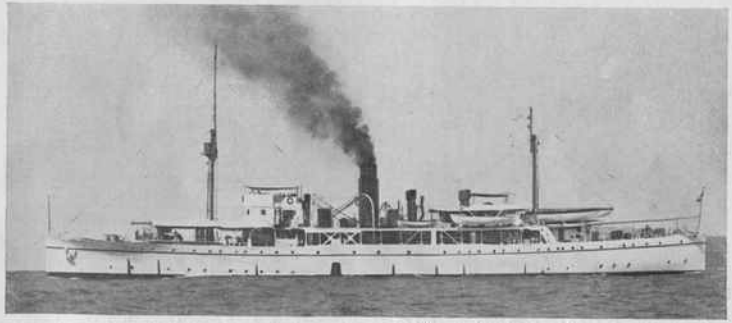
Depot and Repair Ship.



R.A.N. Official Photo, 1922.

PENGUIN (ex-*Platypus*) (Built at Clydebank. Begun Sept. 2nd, 1914; launched Oct. 28th, 1916; completed Mar., 1917.) 3455 tons. Dimensions: 310 (*w.l.*), 325 (*o.a.*) × 44 × 15⅞ feet. (*max.* draught). Guns: *nil*. I.H.P. 3500 = 15.5 kts. Two sets triple expansion reciprocating engines and 4 cylindrical return-tube boilers. 2 screws. Coal: 450 tons. Complement, 357. Serves as Destroyer Depot Ship and Fleet Repair Ship.

Surveying Vessel.



1935, *courtesy of Paym. Com. A. J. White R.A.N.*

MORESBY (ex-*Silvio*, Barclay, Curle & Co., 1918). Ex-Minesweeper of "24" Racehorse class, converted by Pembroke D.Y., 1924–25. 1,320 tons. Dimensions: 276½ (*o.a.*) × 35 × 12 feet. Guns: 1—3 pdr. I.H.P.: 2,500 = 17 kts. Cylindrical boilers. Oil fuel: 230 tons (Converted from coal in 1935). Complement, 141.

Boom Working Vessels.

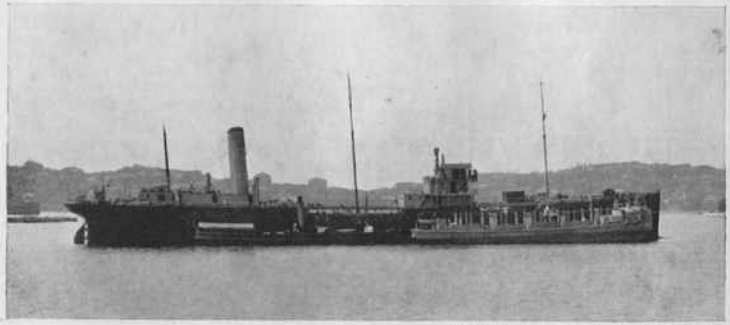
Photo wanted.

KOALA, KANGAROO (1939). Displacement: 730 tons. Dimensions: 150 (*pp.*), 173¾ (*o.a.*) × 32½ × 9½ feet. Guns: 1—3 inch AA. Machinery: Triple expansion. I.H.P. 850 = 11·5 kts. 2 boilers. Oil fuel: 140 tons. Complement 32.

(*See silhouette.*)

KOOKABURRA (Oct. 29, 1938). Built at Cockatoo Dockyard. Displacement: 533 tons. Dimensions: 120 (*pp.*), 135 (*o.a.*) × 26½ × 10½ feet. Guns: 1—3 inch AA. Machinery: Triple expansion. I.H.P.: 450 = 9·5 kts. Cylindrical boiler. Oil fuel: 82 tons.

Miscellaneous.



Added 1937, *courtesy Australian Naval Board.*

KURUMBA (Swan Hunter, Sept., 1916). Fleet Oiler.
Displacement: 7930 tons (3978 tons *gross*). Complement, 44.
Dimensions: 366 (*p.p.*), 378 (*o.a.*) × 45½ × 23½ feet (*max.* draught).
Triple expansion engines and cylindrical boilers. 2 shafts.
I.H.P.: 2,000 = 10 kts. Fuel: 950 tons oil.

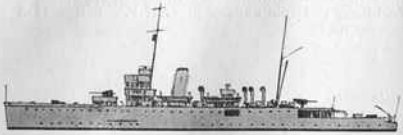
CERBERUS (ex-*Kooronga*). Motor vessel. Displacement: 61 tons. Dimensions: 70 × 14 × 8½ feet. B.H.P.: 126 = 9 kts. Serves as tender to Flinders Naval Depot, Westernport.

ROYAL INDIAN NAVY.

Flag Officer Commanding R.I.N.: Vice-Admiral Herbert Fitzherbert, C.B., C.M.G.

Flags.—Vessels of R.I.N. fly same Ensign and pendant as H.M. Ships. The Indian flag is flown as a Jack. Flag Officer when afloat flies the flag appropriate to his naval rank.

Official Photos have been furnished by courtesy of the Flag Officer Commanding R.I.N.



HINDUSTAN.

INVESTIGATOR.

INDUS.

LAWRENCE.

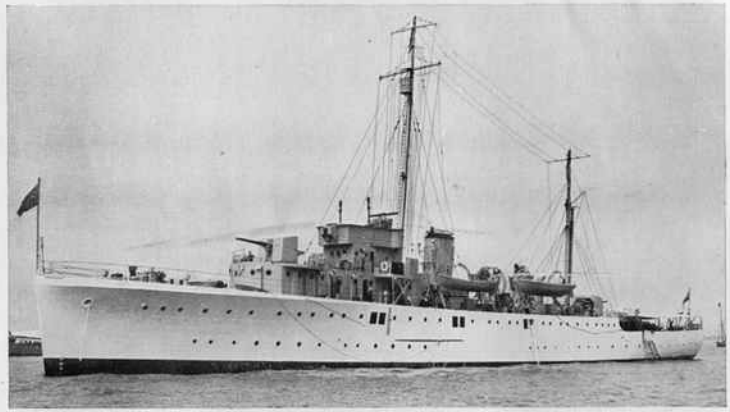
CORNWALLIS.

CLIVE.

New Construction

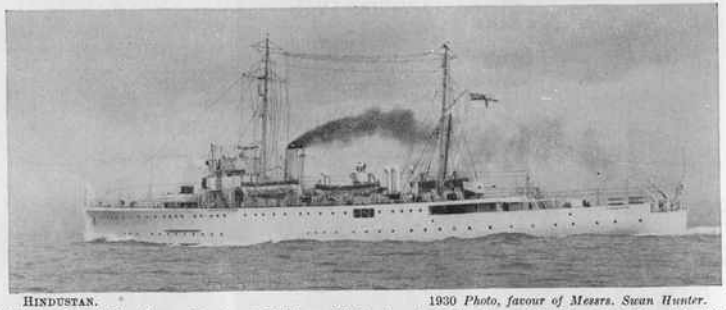
It has been stated that four more sloops are being built for the Royal Indian Navy. A number of corvettes are also understood to be under construction.

Sloops—Escort type.



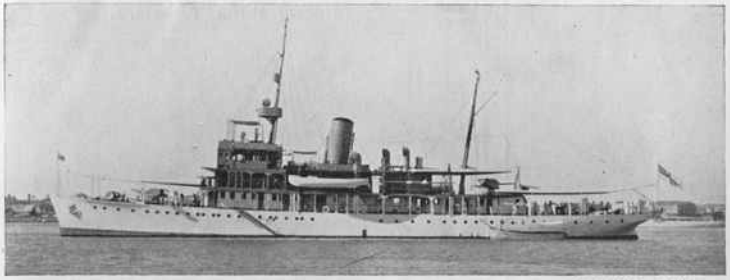
INDUS. 1935, *R. Perkins.*

INDUS (Hawthorn Leslie. Aug. 24, 1934). Displacement: (standard) 1,190 tons. Complement: 119. Dimensions: 296½ (*o.a.*) × 35½ × 8¾ feet (*mean* draught). Guns: **2**—4·7 inch, **4**—3 pdr., **11** smaller. Machinery: Parsons I.R. Turbines with single reduction gearing. 2 shafts. Boilers: 2 Admiralty 3-drum type, 250 lbs. pressure. S.H.P.: 2,000 = 16·5 kts. Oil fuel: 300 tons. Is a slightly enlarged edition of the *Grimsby* class, which she resembles closely, and has internal arrangements on similar lines to *Hindustan*, below.



HINDUSTAN. 1930 *Photo, favour of Messrs. Swan Hunter.*

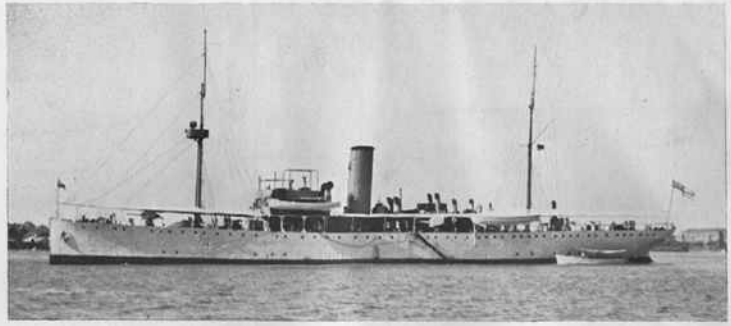
HINDUSTAN. (Swan Hunter & Wigham Richardson). Laid down 1929, launched May 12, 1930 and completed October, 1930. Dimensions: 296½ (*o.a.*) × 35 × 8¾ feet (*mean*). Standard Displacement: 1190 tons. Complement, 119. Guns: **2**—4 inch, **4**—3 pdr., 10 smaller. Machinery: Parsons impulse reaction Turbines with single reduction gearing; 2 shafts. 2 Admiralty 3-drum type boilers, 250 lbs. pressure. S.H.P.: 2000 = 16·5 kts. Oil: 275 tons. The internal arrangements have been designed with special care, making the ship most suitable for the Tropics, and the ventilation has been very carefully planned. The refrigerating plant is of the electrically driven CO_2 type. Is a slightly enlarged edition of *Hastings* class.



1932 *Photo, Official.*

LAWRENCE (ex-Despatch Vessel, launched by Messrs. Beardmore, July 30th, 1919, completed December 27th, 1919). Standard displacement, 1,210 tons. Dimensions: 225 (*p.p.*), 241½ (*o.a.*) × 34 × 12 feet (*max.*) draught. Complement, 119. Guns: 2—4 inch, 4—3 pdrs., 12 smaller. All-geared turbines. 2 screws. 2 Babcock boilers. S.H.P. 1900 = 15 kts. Oil: *normal*, 144 tons; *max.*, 153 tons.

CLIVE (launched by Messrs. Beardmore, December 10th, 1919, completed April 20th, 1920). Standard displacement, 1,748 tons. Dimensions: 240 (*p.p.*), 262½ (*o.a.*) × 38½ × 14 feet. Complement, 123. Guns: 2—4 inch, 4—3 pdrs., 12 smaller. All-geared turbines. 2 screws. 2 Babcock & Wilcox boilers. S.H.P. 2,000 = 14·5 kts. Oil: 179 tons *normal*, and 199 tons *max.*



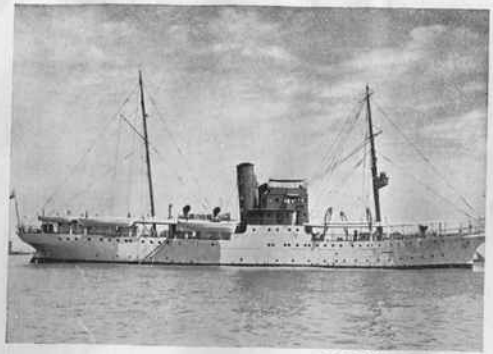
CORNWALLIS (ex-*Lychnis*), (Hamilton, August, 1917.) *Standard* displacement: 1,383 tons. Dimensions: 255¾ (*pp.*), 266½ (*w.l.*), 277¾ (*o.a.*) × 35 × 14½ feet. Guns: 3—4 inch, 4—3 pdrs, 12 smaller. Machinery: 4-cyl. triple expansion vertical. Boilers: 2 cylindrical. 1 screw. Designed H.P.: 2,500 = 16·5 kts. Coal: 260 tons. Complement: 119.

Note.—Cornwallis sold to Indian Government by the Admiralty, September 1921. Sister ship *Elphinstone* wrecked, Jan. 1925.

Auxiliary Vessels.

A number of ex-mercantile vessels have been taken over as a reinforcement of the R.I.N. since the outbreak of war in Sept., 1939.

Surveying Vessel.



1933 *Photo, Official.*

INVESTIGATOR. Ex-cable ship *Patrick Stewart* (Simons, 1924). Displacement: 1,572 tons. Complement, 109. Dimensions: 226 (*pp.*), 247 (*o.a.*) × 37½ × 13½ feet (*mean* draught). No guns. Triple expansion engines. 2 shafts. H.P.: 1,137 = 12·5 kts. 2 cylindrical boilers. Oil fuel: 292 tons.

Trawler.

1932 *Photo, Official.*

MADRAS. (Burns & Co., Calcutta, 1919). Standard displacement: 413 tons. Complement, 23. Dimensions: 125 (*pp.*), 134 (*o.a.*) × 23½ × 12 feet (*mean* draught). No guns. Machinery: Triple expansion, by Hawthorn Leslie. 1 shaft. H.P.: 460 = 10 kts. 1 cylindrical coal-fired boiler. Used for target towing.

STRAITS SETTLEMENTS

Motor Patrol Boats.

PAHLAWAN. 1939, *courtesy Messrs. Thornycroft.*

2 *Thornycroft type:* **PAHLAWAN, PANGLIMA.**
Dimensions: 76½ (*o.a.*) × 13½ × 4½ feet.
Armament: 1 Small Gun, and D.C. Fitted for minesweeping.
Machinery: 1 RY/12 petrol engine and 2 RL/6 Diesels. Total B.H.P.: 780.

PANJI, PENINGAT. Particulars wanted.

Note.—All these craft are used in peace time for training of personnel of Straits Settlements Division, R.N.V.R.

KENYA AND ZANZIBAR

Minesweepers.

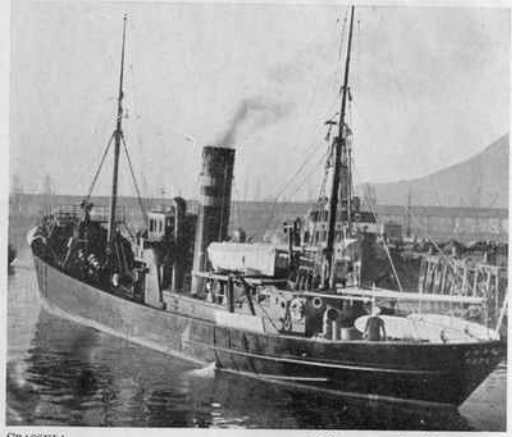
NDOVU. Ex-tug, used for sea training of Kenya Division, R.N.V.R.
ALHATHARI. Ex-tug, used for a similar purpose at Zanzibar. Both built by Bow, McLachlan & Co., Paisley (1928). *Standard* displacement: 380 tons. Dimensions: 125 × 25 × 8 feet. Guns: 1—3 inch, 2 Lewis, 1 D.C.T. Fitted for minesweeping. I.H.P.: 500 = 10 kts. Complement: 25.

SOUTH AFRICA.

Motor Torpedo Boats.

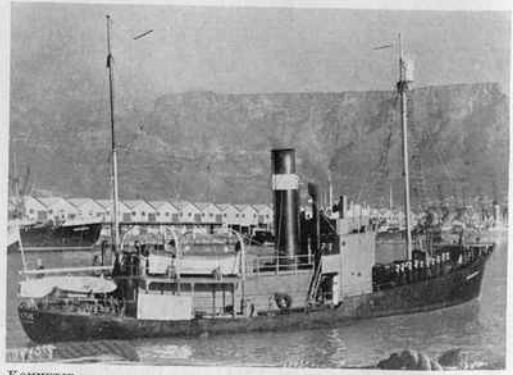
2, of 70 ft. type, are to be built.

Minesweeping Trawlers.



CRASSULA. 1939, *courtesy the Navy League.*

CRASSULA (Hall, Russell & Co., Aberdeen, 1935). 261 tons gross. Dimensions: 125½ × 23½ × 12 feet. Guns: 1—6 pdr. I.H.P. 480 = 11·5 kts. (ex-Trawler).



KOMMETJE. 1939, *Sport and General.*

KOMMETJE (Nylands Värksted, Oslo, 1930). 252 tons gross. Dimensions: 115 × 23¾ × 11½ feet. Guns: 1—6 pdr. I.H.P. 550 = 12 kts. (ex-Whaler).

NEWFOUNDLAND.

Transports, etc.

(All photos, courtesy H. A. Le Messurier, Esq.)

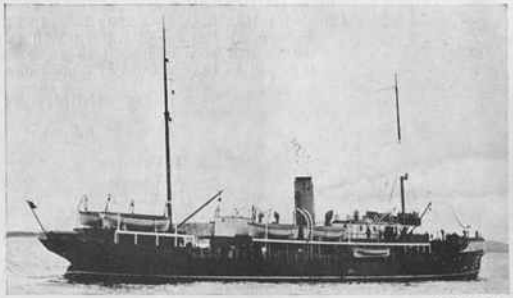
Added 1938.

CARIBOU (Nieuwe Waterweg Scheepsbouw Maatschappij, Rotterdam, 1935). 2222 tons *gross*. Dimensions: 266 × 41¼ × 18½ feet draught. Armament nil. I.H.P. 2800 = 14 kts. Machinery: Triple expansion. 1 screw. 2 S.E. boilers, working pressure 200 lbs. Coal: 411 tons. Complement, 42. Accommodation also provided for 180 passengers or 243 troops. Strengthened for ice navigation.

Added 1938.

NORTHERN RANGER. (Fleming & Ferguson, Paisley, 1936). 1,365 tons *gross*. Complement, 32. Dimensions: 220 × 36 × 16⅜ feet draught. Speed 11·5 kts. Coal: 270 tons. Strengthened for ice navigation.

Transports, etc.—*continued*.



Added 1938.

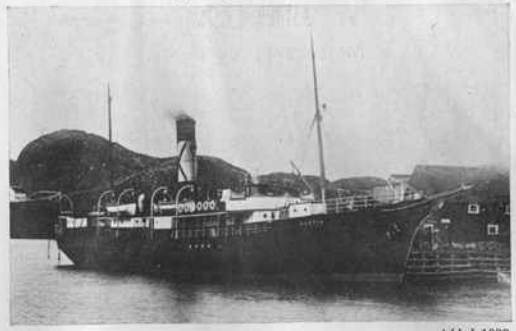
KYLE. (Swan Hunter, 1913). 1,055 tons *gross*. Complement, 34. Dimensions: 220 × 32 × 16⅜ feet draught. Speed: 13·5 kts. Strengthened for ice navigation.

Added 1938.

SAGONA. (Dundee Shipbuilding Co., Ltd., 1912). 808 tons *gross*. Complement, 26. Dimensions: 175 × 28½ × 16½ feet draught. Speed: 11 kts. Strengthened for ice navigation.

DAISY. (J. Duthie Torry Shipbuilding Co., Aberdeen, 1912). Displacement: 510 tons, 248 tons *gross*. Complement, 16. Dimensions: 125 × 18 × 10 feet draught. Speed: 10 kts.

Transports, etc.—*continued*.



PORTIA. *Added* 1938.

PORTIA, PROSPERO. (Murdoch & Murray, Port Glasgow, 1904). 978 tons *gross*. Complement, 32. Dimensions: 204 × 31 × 17 feet draught. Speed: 11·5 kts.

ARGYLE. *Added* 1938.

ARGYLE, CLYDE, HOME. (A. & J. Inglis, Glasgow, 1900). 439 tons *gross*. Complement, 20. Dimensions: 154½ × 25 × 12 feet draught. Speed: 10 kts.

Added 1938.

GLENCOE. (A. & J. Inglis, Glasgow, 1899). 767 tons *gross*. Complement, 24. Dimensions: 208 × 30 × 16 feet draught. Speed: 11 kts.

EIRE.

Motor Torpedo Boats.

1940, *courtesy "The Motor Boat"*

M1, M2 (1939). Displacement: 32 tons. Dimensions: 72 × 16½ × 3¾ feet. Armament: 2—21 inch torpedoes, 2 M.G. AA. Machinery: 3 Isotta-Fraschini petrol motors. B.H.P.: 3,450 = over 40 kts.

Fishery Protection Vessels: **FORT RANNOCK.** Particulars wanted.

MUIRCHU (ex-*Helga*) (Dublin, 1908). 323 tons *gross*. Dimensions: 155½ × 24½ × 12½ feet (*depth*).

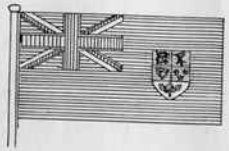
ROYAL CANADIAN NAVY.

Chief of the Naval Staff under Minister of National Defence: Rear-Admiral P. W. Nelles, R.C.N.

Personnel: R.C.N., Officers, 150; Men, 1,822. R.C.N.R., 70 and 430. R.C.N.V.R., 138 and 1,678. Fishermen's Reserve of R.C.N.R., 40 skippers and 160 men. Up to October, 1940, these figures had been expanded to 2,000 officers and over 13,000 ratings; and by 1942 it is hoped to have a total of 28,000 officers and men.

Uniforms: As British Navy.

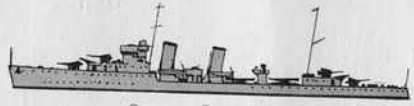
N.B.—A = Atlantic, P = Pacific.



ENSIGN.

OTTAWA *class*.
(ASSINIBOINE similar, with C.N.)

ARMENTIÈRES.



SKEENA, SAGUENAY.

New Construction, etc.

2 destroyers of "Tribal" type.

34 minesweepers, to cost £120,000 each, including **COWICHAN** (August, 1940) and **NIPIGON** (October 1, 1940).

54 corvettes, 193 feet in length. Two of these have been named **BANFF** (July 23, 1940) and **CHANBY** (1940), according to Press reports.

24 motor torpedo boats, 70 ft. type.

Above were ordered during 1939 for the Royal Canadian Navy. In addition, 10 more minesweepers were ordered from Canadian shipyards for the Royal Navy.

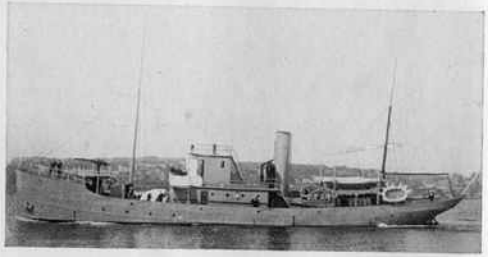
A number of merchant vessels of various types have been taken over, including the armed merchant cruiser **PRINCE ROBERT** (1930), of 6,900 tons gross, and upwards of 100 other units.

15 large oceangoing yachts have been acquired for patrol duties, and have been renamed after Canadian animals, e.g., **BEAR** (ex-*Blue Water*), **COUGAR** (ex-*Breezin Thru*), **GRIZZLY** (*ex-Machigonne*).

Minesweeping Trawlers.

Photo wanted.
Practically identical in appearance with BASSET, *in British Navy Section.*

(P) **COMOX** (Burrard Dry Dock Co., Vancouver, B.C., Aug. 9, 1938). (A) **FUNDY** (Collingwood Shipyards, June 18, 1938). (A) **GASPÉ** (Morton Engineering & Dry Dock Co., Quebec, Aug. 12, 1938). (P) **NOOTKA** (Yarrows, Victoria, B.C., Sept. 26, 1938). Displacement: 460 tons (696 tons *full load*). Complement: 25 peace, 33 war. Dimensions: 150 × 27½ × 14½ feet. Guns: 1—4 inch. Machinery: Triple expansion. I.H.P.: 950 = 12·5 kts. Coal: 180 tons.



1932 *Photo, Official.*

(P) **ARMENTIÈRES** (1918). Ex-Trawler. Steel. 357 tons *gross*, 136 tons *net*. Dimensions: 130 × 25 × 14 feet. Guns: 1—3 inch. Machinery: Triple expansion. I.H.P.: 480 = 10 kts. Coal: 140 tons. Complement: 18.

Note.—3 sister ships are in service of Department of Fisheries (see a later page).

Destroyers.

ASSINIBOINE 1932 *Photo, R. Perkins.*

Assiniboine (ex-*Kempenfelt*), (Oct. 29, 1931). Built by J. Samuel White & Co., Ltd., and acquired from Royal Navy in 1939. Displacement : 1,390 tons. Complement : 175. Dimensions : 317¾ (*pp.*), 326 (*w.l.*) × 33 × 8¾ feet (*mean*). Guns : 4—4·7 inch, 6 smaller. Tubes : 8—21 inch. Machinery : Parsons geared turbines. S.H.P. : 36,000 = 35·75 kts. Boilers : Admiralty 3-drum type, 300 lb. working pressure. Oil fuel : 470 tons.

3 "Ottawa" class

(Appearance as FRASER, in War Loss Section)

St. Laurent (ex-*Cygnet*), (Vickers-Armstrongs. Sept. 29, 1931). ***Ottawa*** (ex-*Crusader*), ***Restigouche*** (ex-*Comet*), (both Portsmouth Dockyard, Sept. 30, 1931). Acquired from Royal Navy in 1937 and 1938. Displacement : 1,375 tons. Complement : 145. Dimensions : 317¾ (*pp.*), 326 (*w.l.*) × 33 × 8½ feet (*mean*). Guns : 4—4·7 inch, 7 smaller. Tubes : 8—21 inch (quadrupled). Machinery : Parsons geared turbines. S.H.P. : 36,000 = 36 kts. Boilers : 3 Admiralty 3-drum type. Oil fuel : 470 tons. Laid down in 1930 and completed in 1932. (Plan as British *Defender* class).

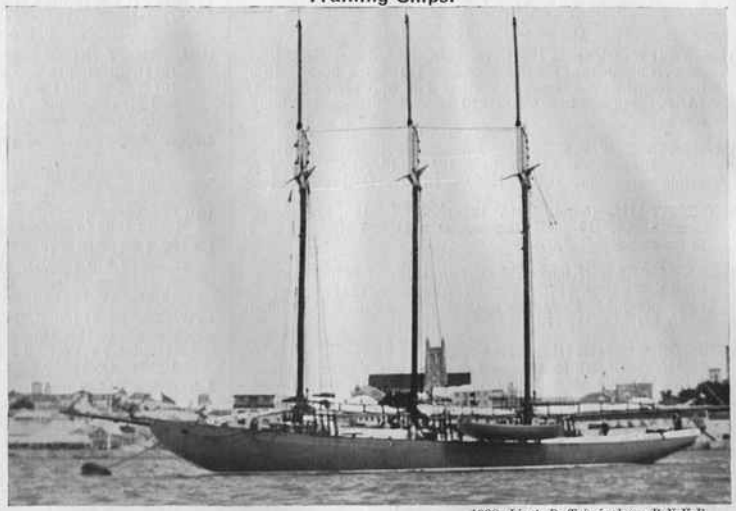
2 "Skeena" class.

SAGUENAY. 1932 *Photo, Lieut. D. Trimingham, R.N.V.R.*

Saguenay (July 11, 1930) and ***Skeena*** (October 10, 1930), ordered in January, 1929, from Messrs. Thornycroft. Displacement : 1,337 tons. Dimensions : 309 (*pp.*), 321½ (*o.a.*) × 32¼ × 10½ (*mean*), 12 feet (*max.*). Guns : 4—4·7 inch, 2—2 pdr. pom-pom, 5 M.G. Tubes : 8—21 inch (quadrupled). H.P. : 32,000 = 35 kts. Machinery : Parsons geared turbines. 3 Thornycroft boilers, with superheaters. Oil fuel : 440 tons Complement : 138.

Notes.—These ships exceeded 37 knots on trials with ease, and their running was marked by almost complete absence of vibration. Similar to British "A" class, but specially strengthened to withstand ice pressure. Laid down in 1929 and completed in 1931. Cost, with armament, about £670,000 for the pair.
(Plan as British *Achates* class.)

Training Ships.



1938, *Lieut. D. Trimingham, R.N.V.R.*

VENTURE (June 9, 1937). Auxiliary 3-masted Wooden Schooner. Displacement : 250 tons. Length : 110 feet (*w.l.*), 146 feet (*o.a.*) × 27 × 14 feet (*mean*). Machinery : Petter Diesel. B.H.P. : 120 = 7 kts. Radius : 1,000 miles ; carries water and provisions for 30 days. Sail area : 12,000 sq. feet. Complement : 40, including 24 boys under training.

Note.—This vessel was built for the R.C.N. by Meteghan Shipbuilding Co., Meteghan, N.S.

SKIDEGATE (1927). Motor launch. Dimensions : 47 × 13½ feet. Diesel engine. B.H.P. 80. Used for training Fishermen's Reserve organisation.

2 "St. Croix" class

St. Croix (ex-*McCook*) (Jan. 31, 1919).
St. Francis (ex-*Bancroft*) (March 21, 1919).

Displacement : 1,190 tons. Dimensions : 311 (*w.l.*) × 30¾ × 9½ feet (*mean* draught). Machinery : Curtis geared turbines, 2 shafts. S.H.P. 27,000 = 35 kts. Boilers : 4 Yarrow. Oil fuel : 375 tons.

4 "Annapolis" class

Annapolis (ex-*Mackenzie*) (Sept. 19, 1918).
Columbia (ex-*Haraden*) (July 4, 1919).
Niagara (ex-*Thatcher*) (Aug. 31, 1918).
St. Clair (ex-*Williams*) (July 4, 1918).

Displacement : 1,060 tons. Dimensions : 309 (*w.l.*) × 30½ × 8½ feet (*mean* draught). Machinery : Curtis geared turbines, 2 shafts. S.H.P. 25,000 = 35 kts. Boilers : 4 Yarrow, except *Columbia*, 4 Thornycroft. Oil fuel : 300 tons.

Note.—Above 6 destroyers were all acquired from the United States Navy in September, 1940, and are of the "Flush deck" type illustrated in that section. When taken over, armament comprised 4—4 inch, 2 M.G. A.A. and 12—21 inch torpedo tubes.

Canadian Government Vessels

These form a potential reserve for the Royal Canadian Navy in time of war, though administered during peace by the several Departments named below. It is believed that nearly all are now serving with the R.C.N.

Department of Transport

ALBERNI (Sorel, Que., 1927). (Rebuilt, 1936). Steel. 502 tons *gross*. Complement: 24. Dimensions: 157·3 × 30·5 × 10·6 feet (depth). Machinery: Vertical fore and aft compound. I.H.P.: 360 = 8 kts. Coal: 270 tons. (Lighthouse and buoy service).

ARANMORE (W. B. Thompson, Dundee, 1890). Iron. 1,170 tons *gross*. Dimensions: 241½ × 34 × 15½ feet (depth). Machinery: Triple expansion. H.P.: 1,500 = 13 kts. Coal: 230 tons.

ARGENTEUIL (Sorel, Que., 1916). Steel. 165 tons *gross*. Complement, 13. Dimensions: 94 × 21 × 7 feet. Coal: 48 tons.

BELLECHASSE (Kingston S.B. Co., 1912). Steel. Displacement: 576 tons, 417 tons *gross*. Dimensions: 142½ × 27 × 12 feet (depth). Machinery: Triple expansion. H.P.: 1,000 = 13 kts. Coal: 110 tons.

BERENS, BIRNIE (B.C. Yacht & Boat Builders Co., Victoria, 1921). Wood. 73 tons *gross*. Complement: 9. Dimensions: 66½ × 18 × 9½ feet (depth). Machinery: Semi-Diesel. B.H.P.: 100 = 8·5 kts. Fuel: 1,800 gallons.

BERNIER (ex-*Mardep*). (Davie S.B. & Repairing Co., Lauzon, Que., 1918). Steel. 317 tons *gross*. Complement: 19. Dimensions: 125 × 23 × 13½ feet (depth). Machinery: Triple expansion. I.H.P.: 500 = 9·5 kts. Coal: 100 tons.

BERTHIER (Sorel, Que., 1916). Steel. 368 tons *gross*. Complement: 20. Dimensions: 120 × 24 × 11·4 feet (depth). Machinery: Fore and aft compound. I.H.P.: 550 = 10·5 kts. Coal: 38 tons. (Ship Channel Service).

BRANT (Sorel, Que., 1927). Steel. 285 tons *gross*. Complement: 19. Dimensions: 124½ × 23 × 12 feet (depth). Machinery: Triple expansion. I.H.P.: 350 = 10 kts. Coal: 68 tons.

CITADELLE (Davie S.B. & Repairing Co., 1932). Steel. 431 tons *gross*. Complement: 13. Dimensions: 120½ × 30 × 13½ feet (depth). Machinery: Triple expansion. I.H.P.: 1,200 = 13 kts. Oil fuel: 74 tons.

DETECTOR (Sorel, Que., 1915). Steel. 584 tons *gross*. Complement: 23. Dimensions: 140 × 35 × 13 feet (depth). Machinery: Fore and aft compound. I.H.P.: 532 = 10·5 kts. Coal: 110 tons. (Ship Channel Service).

DOLLARD (Kingston S.B. Co., 1913). Steel. 761 tons *gross*. Dimensions: 178½ × 32 × 15½ feet (depth). Machinery: Triple expansion. I.H.P.: 1,000 = 11 kts. Coal: 100 tons.

DRUID (Fleming & Ferguson, 1902). Steel. Displacement: 1,000 tons. Dimensions: 160 × 30 × 12½ feet (depth). Machinery: Triple expansion. I.H.P.: 800 = 10 kts. Coal: 100 tons.

ESTEVAN (Collingwood S.B. Co., 1912). Steel. Displacement: 2,100 tons, 1,161 tons *gross*. Dimensions: 212 × 38 × 15½ feet (depth). Machinery: Triple expansion. I.H.P.: 1,500 = 12·5 kts. Coal: 350 tons.

FRONTENAC (Sorel, Que., 1930). Steel. 248 tons *gross*. Complement: 20. Dimensions: 108·8 × 24 × 10 feet (depth). Machinery: Vertical triple expansion. I.H.P.: 472 = 10 kts. Coal: 45 tons. (Ship Channel Service).

GRENVILLE (Polson Iron Works, 1915). Steel. 497 tons *gross*. Dimensions: 155 × 31 × 11 feet (depth). Machinery: Triple expansion. I.H.P.: 900 = 11·5 kts. Coal: 100 tons.

JALOBERT (Kingston Shipbuilding Co., Ltd., Kingston, Ont., 1911). Steel. 278 tons *gross*. Complement: 20. Dimensions: 107·5 × 23 × 11·9 feet (depth). Machinery: Vertical fore and aft compound. I.H.P.: 120 = 11 kts. Coal: 58½ tons. (Ship Channel Service).

LADY GREY (Vickers, 1906). Steel. Displacement: 1,080 tons. 733 tons *gross*. Dimensions: 172 × 32 × 16 feet (depth). Machinery: Triple expansion. I.H.P.: 2,300 = 14 kts. Coal: 200 tons. (Icebreaker).

(An Icebreaker was ordered from the Davie Shipbuilding & Repair Co. in 1939 to replace LADY GREY.)

LADY LAURIER (Fleming & Ferguson, 1902). Steel. Displacement: 1,970 tons, 1,051 tons *gross*. Dimensions: 215 × 34½ × 17½ feet. Machinery: Triple expansion. I.H.P.: 1,800 = 13 kts. Coal: 175 tons.

LANORAIE II (Sorel, Que., 1928). Steel. 177 tons *gross*. Complement: 13. Dimensions: 93·7 × 23 × 10 feet (depth). Machinery: Vertical fore and aft compound. I.H.P.: 336 = 10 kts. Coal: 30 tons. (Lighthouse and buoy service).

LAURENTIAN (ex-*King Edward*). (Cook, Welton & Gemmell, 1902). Steel. 355 tons *gross*. Dimensions: 149 × 24 × 11 feet (depth). Machinery: Triple expansion. I.H.P.: 520 = 11 kts.

MONTCALM (Napier & Miller, 1904). Steel. Displacement: 3,270 tons, 1,432 tons *gross*. Dimensions: 245 × 40½ × 15¾ feet. Machinery: Triple expansion. I.H.P.: 3,600 = 14 kts. Watertube boilers. Coal: 425 tons.

MURRAY STEWART (Port Arthur, Ont., 1918). Steel. 234 tons *gross*. Complement, 15. Dimensions: 119 × 26 × 15½ feet. Speed: 10 kts. Coal: 150 tons.

N. B. McLEAN (Halifax Shipyards, March, 1930). Steel. Displacement: 5,000 tons. 3,254 tons *gross*. Complement: 49. Dimensions: 260 × 60½ × 28½ feet (depth). Machinery: Triple expansion. I.H.P.: 6,500 = 15 kts. Oil fuel: 1,322 tons. (Icebreaker).

OCEAN EAGLE (ex-*St. Arvans*), (Day, Summers & Co., 1919; rebuilt, 1927). Steel. 420 tons *gross*. Complement: 15. Dimensions: 135 × 29 × 14¾ feet (*mean* draught). Machinery: Triple expansion. I.H.P.: 1,200 = 11·5 kts. Coal: 221 tons. (Tug).

ST. HELIERS (Port Glasgow, 1919), (Re-built, St. John, N.B., 1930). Steel. 929 tons *gross*. Complement, 23. Dimensions: 190½ × 29 × 16½ feet. I.H.P.: 1,200 = 11·5 kts. Oil fuel: 110 tons.

SAFEGUARDER (ex-salvage vessel *Safeguard*). (Day, Summers & Co., 1914; rebuilt, 1929). Steel. 665 tons *gross*. Complement: 24. Dimensions: 160 × 29 × 15¼ feet (depth). Machinery: Triple expansion. I.H.P.: 1,350 = 13·5 kts. Coal: 110 tons.

SAUREL (Canadian Vickers, Oct. 30, 1929). Steel. 1,176 tons *gross*. Complement: 23. Dimensions: 200 × 42 × 19½ feet (depth). Machinery: Triple expansion. I.H.P.: 3,000 = 17 kts. Oil fuel: 370 tons.

VARENNES (Sorel, 1911). Wood. 187 tons *gross*. Complement: 12. Dimensions: 85½ × 22½ × 9½ feet (depth). Machinery: Compound. I.H.P.: 200 = 9 kts. Coal: 50 tons.

VERCHERES (Polson Iron Works, 1901; rebuilt, 1928). Steel. 157 tons *gross*. Complement: 14. Dimensions: 104 × 26½ × 11 feet (depth). Machinery: Compound. I.H.P.: 60 = 8 kts. Coal: 50 tons.

Department of Mines and Resources.

ACADIA (Swan Hunter, 1913). Steel. Displacement: 1,710 tons. Complement: 49. Dimensions: 170 × 33¾ × 19 feet (depth). Guns: 1—4 inch, 2—3 inch. Machinery: Triple expansion. H.P.: 1,200 = 12 kts. Coal: 260 tons. (Surveying Service, Atlantic).

CARTIER (Swan Hunter, 1910). Steel. Displacement: 897 tons. Complement: 41. Dimensions: 164 × 29 × 13 feet. Guns: 3—3 inch. Machinery: Triple expansion. I.H.P.: 830 = 12 kts. Coal: 180 tons. (Surveying Service, Atlantic).

WILLIAM J. STEWART (Collingwood Shipyards, 1932). Steel. 1,295 tons *gross*. Complement: 57. Dimensions: 214 × 36 × 15 feet (depth). Machinery: Triple expansion. I.H.P.: 1,200 = 12 kts. Coal: 300 tons. (Surveying Service, Pacific).

Department of Lands (Manitoba)

BRADBURY (1915). Steel. Displacement: 500 tons, 394 tons *gross*. Complement: 13. Dimensions: 151 × 27¼ × 8 feet. Machinery: Triple expansion. (Employed on Fisheries Patrol, Lake Winnipeg).

Department of Fisheries

FISHERY PATROL VESSELS—

ARLEUX, ARRAS, GIVENCHY (all 1918). Steel. 357 tons *gross*. Complement: 18. Dimensions: 130 × 25 × 13 feet. Guns: 1—3 inch. Machinery: Triple expansion. I.H.P.: 480 = 10 kts. Coal: 140 tons.

MALASPINA (Dublin Dockyard Co., 1913). Steel. Displacement: 850 tons. Complement: 40. Dimensions: 162½ × 27 × 13 feet (depth) Guns: 1—6 pdr. Machinery: Triple expansion. I.H.P.: 1,350 = 14·5 kts. Coal: 200 tons.

Royal Canadian Mounted Police (Marine Section)

CUSTOMS PATROL VESSELS—

ADVERSUS (1931). Composite. 156 tons *gross*. Complement: 14. Dimensions: 112 × 19 × 11 feet (depth). Diesel engines. B.H.P.: 365.

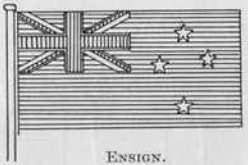
FLEURDELIS (Canadian Vickers, 1929). Steel. 316 tons *gross*. Complement: 23. Dimensions: 165 × 21 × 11 feet (depth). Winton engines of 1,800 B.H.P.

FRENCH (Davie S.B. & Repairing Co., 1938). Steel. 226 tons *gross*.

LAURIER, MACDONALD (1937). 201 tons *gross*. Dimensions: 113 × 21 × 10½ feet (depth).

(There are 8 smaller vessels, also used in Customs Patrol.)

NEW ZEALAND.



ENSIGN.

Commander-in-Chief—H. E. The Rt. Hon. Viscount Galway, G.C.M.G., D.S.O., O.B.E.

Naval Board.

President: The Minister of Defence, the Hon. Frederick Jones, M.P.
First Naval Member: Commodore W. E. Parry, C.B., R.N.
Second Naval Member and Chief Staff Officer: Commander A. B. Fanshawe, R.N.
Naval Secretary: Paymaster Captain N. T. P. Cooper, R.N.
Commanding N.Z. Division: Commodore J. W. Rivett-Carnac, D.S.C., R.N.

Minesweeping Trawlers.

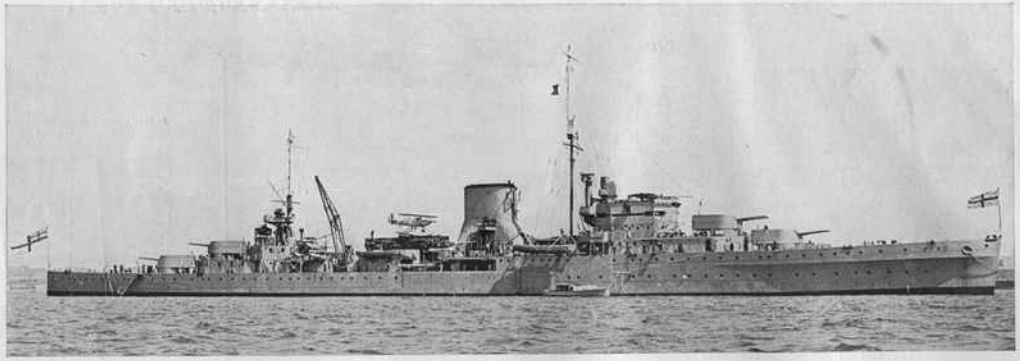
KIWI, MOA, TUI. Building in Scotland. To be fitted for minesweeping. Guns: 1—4 inch, several smaller.

1937, *Nautical Photo Agency.*

WAKAKURA (ex-*T.R.*1). "Castle" type, similar to *Coronet*, in British Navy section.

(3 more trawlers have been taken up and commissioned since the outbreak of war.)

Cruisers



ACHILLES.

1934 *Photo, R. Perkins.*

LEANDER.

1937, *R. Perkins.*

ACHILLES (1932), **LEANDER** (1931), 7,030 and 7,270 tons respectively. Guns: 8—6 inch, 8—4 inch AA., 4—3 pdr., 8 smaller. 1 aircraft carried. (Full details of both ships will be found in Royal Navy section, on earlier pages. Both are lent to the New Zealand Government by the Admiralty, the former paying for their annual maintenance on the Station.)

Fleet Tug.

TOIA (ex-*St. Boniface*, ex-*St. Fergus*). Details as "Saint" class, in British Navy Section.

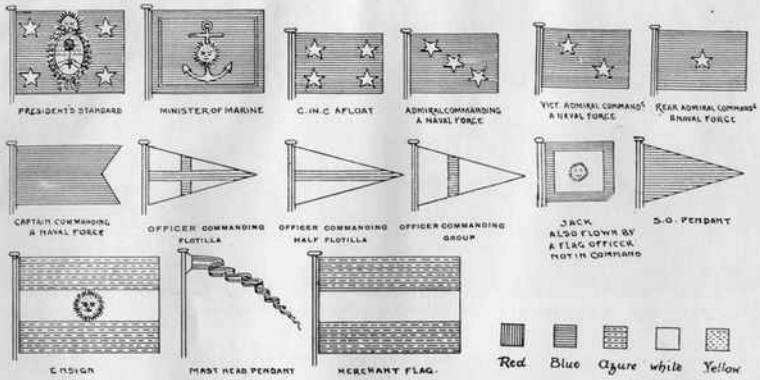
Sail Training Vessel.

VIKING. Length, 67 feet. Ketch, attached to Training Depot at Auckland.

Note.—Escort Vessels *Leith* and *Wellington* and Surveying Vessel *Endeavour* (all described on earlier pages) are also attached to New Zealand Division for duty in the islands of the S. Pacific.

ARGENTINA.

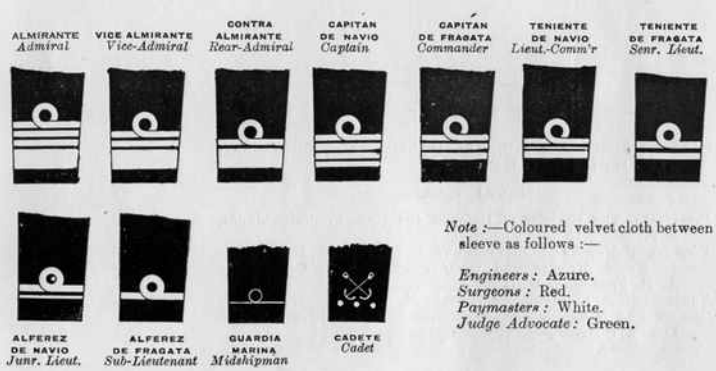
Flags.



Notation.	Nominal Calibre.		Maker.	Length in Calibres.	Muzzle Velocity.	Weight A.P. Projectile.	Max. penetration against K.C. with capped A.P. at 5000 yards.	Max. penetration against K.C. with capped A.P. at 3000 yards.
	inches.	c/m.		calibres.	ft. secs.	lbs.	inches.	inches.
Heavy	12	*30·5*	B	50	2900	870	19	23
Medium	10	*25·4*	A	40	2207	500	7	9½
	9·4	*24*	K	35	{2300 / 2133}	352	4½	6
	7·5	*19*	A	52	3116	200	...	...
Light	6	*15*	B	50	2600	105	...	8½
	6	*15*	A	45	2500	100	3	4½
	6	*15*	A	40	2200	100	3	3 3/4
	4·7	*12*	A	45	2570	45	...	2¾
	4·7	*12*	A	40	2230	45	...	...
	4	*10·16*	B	50	2996	30	...	...

In the Maker's column A = Armstrong; B = Bethlehem; K = Krupp.
There are also Italian models of 4 inch and 3·9 inch guns.
The above details of Argentine Naval Ordnance have been officially revised.

Insignia of Rank.



Note :—Coloured velvet cloth between sleeve as follows :—

Engineers : Azure.
Surgeons : Red.
Paymasters : White.
Judge Advocate : Green.

Dockyards and Arsenals.

DÁRSENA NORTE. (Buenos Aires). Dry docks : (Eastern) 590½ × 65½ × 25 feet, and (Western) 492 × 65½ × 25 feet.

PUERTO BELGRANO (Bahia Blanca). Dry docks : (1) 657 × 84 × 32½ ft., (2) 683 × 114 × 43 ft.
RIO SANTIAGO. Dock, 672 × 114 × 36 feet. Two floating docks. (1) 1500 tons lift ; (2) 300 tons lift.

Mercantile Marine.

(From "Lloyd's Register," 1939 figures.)
337 vessels of 312,970 tons, gross tonnage.

General Notes.

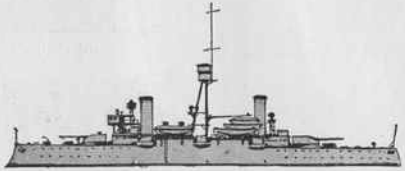
Minister of Marine : Contralmirante Mario Fincati.
Chief of Naval Staff : Vicealmirante Julian Fablet.
Chief of Naval Commission (Europe) and Naval Attaché, London : Capitán de Fragata Alberto F. Job.
Personnel : 1,000 officers, 14,500 men.
Form of Address : Capitán de Navio ——, A.R.A. ——.

INDEPENDENCIA. LIBERTAD.

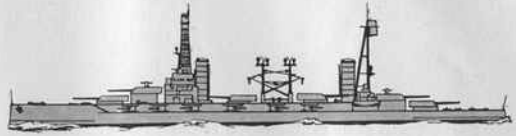
LA ARGENTINA.

BAHIA BLANCA.
COMODORO RIVADAVIA.

ALMIRANTE BROWN.
25 DE MAYO.



BELGRANO. PUEYRREDON.



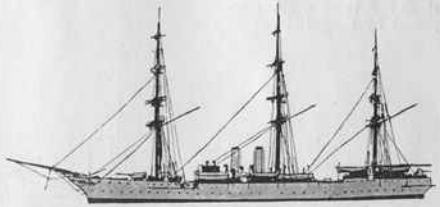
MORENO.
RIVADAVIA.

CERVANTES *Class.*

BATHURST *Class.*

CORDOBA.
LA PLATA.

MENDOZA *Class.*



PRESIDENTE SARMIENTO.

BOUCHARD *Class.*

CATAMARCA.
JUJUY.

CORRIENTES *Class.*

SANTA FÉ *Class.* (3).

RIVADAVIA (26 Aug., 1911) & **MORENO** (23 Sept., 1911).

Standard displacement, 27,720 tons. *Full load*, over 31,000 tons. Complement, 1215.

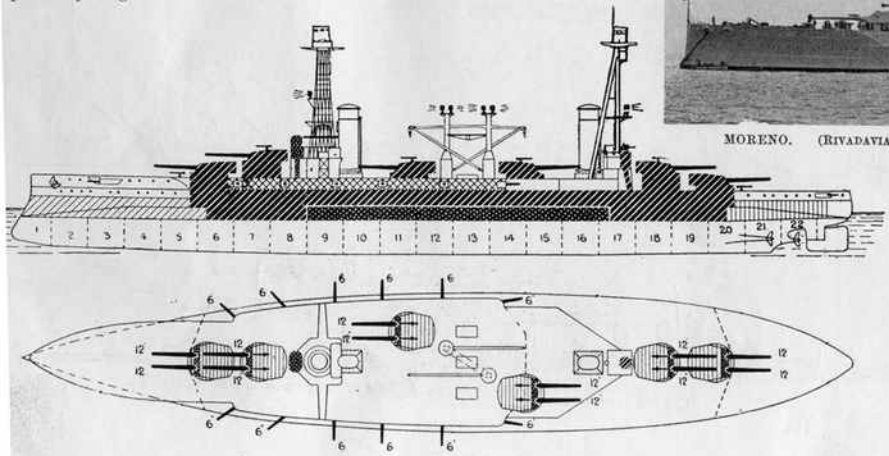
Length (*w.l.*), 577½ feet. Beam, 95 feet. *Max.* load draught, 28 feet. Length (*over all*), 585 feet.

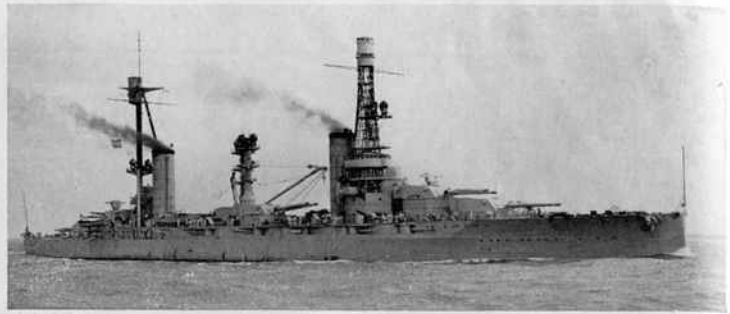
Guns (Bethlehem):
12—12 inch, 50 cal.
12—6 inch, 50 cal.
4—3 inch AA.
4—3 pdr.
6 M.G.
(4 landing).
Torpedo tubes (21 inch):
2 *submerged*
(broadside).

Armour (Krupp): (*See notes.*)
11″—8″ Belt (amidships)
5″ Belt (bow) N.C.
4″ Belt (stern) N.C.
3″ Deck (slopes)
9″—8″ Side above belt..
12″—9″ Big gun turrets..
6″ Secondary battery (N.C.)
12″ Conning Tower (forward)
9″ Do. (aft.)
Total weight: 7600 tons.

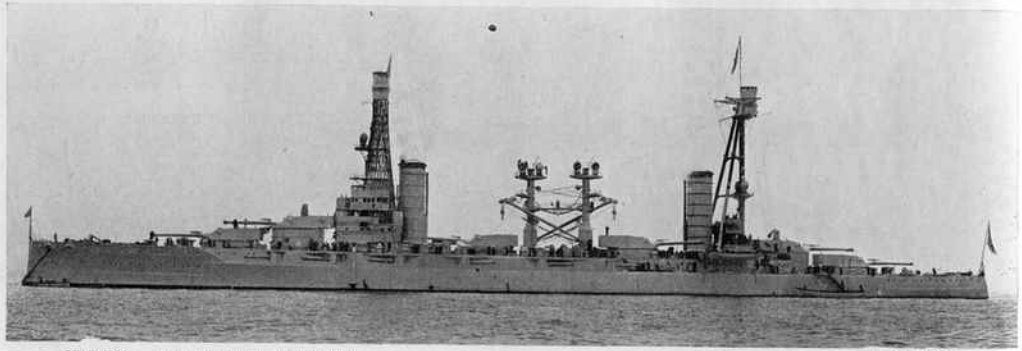
Machinery: Curtis geared turbines. 3 screws. S.H.P. 45,000 = 23 kts.
Boilers: 18 Babcock (converted to oil burning, 1924-25). Oil: 3,600 tons.
Nominal radius: 3930 miles at full speed, 8500 miles at 10 kts.

ote to plan:—
3 pdr. guns shown on top of B and X turrets, since replaced by rangefinders.





MORENO. 1937, *Official*



MORENO. (RIVADAVIA same appearance). 1937, *R. Perkins.*

Gunnery Notes.—Heights of barbettes over normal draught w.l.: No. 1, 29½ feet; No. 2, 37½ feet; Nos. 3 and 4 (echelon), and No. 5, 29 feet; No. 6 20 feet; 6 inch guns, 19½ feet above w.l. Arcs of fire: end barbettes, Nos. 1 and 6, 270°; Nos. 2 and 5 (super-firing), 300°; Nos. 3 and 4 (echelon) 180° own beam and 100° far beam. Director controls (U.S.) type installed during 1924—25 refits. Rates of fire are reported to be: 12 inch, 2 rounds a minute; 6 inch, 8; 3 inch, 12.

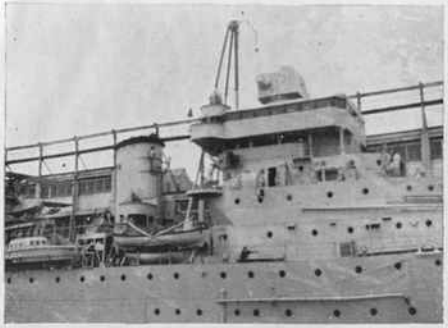
Armour Notes.—Main belt is 8 feet deep, 4½ feet above water-line and 3½ feet below same at normal draught. It is 240 feet long, but 11″ section is only 2 feet deep from top edge of belt, and then tapers to 5″ on lower (under-water) edge. Belt under end barbettes is 10″ tapering to 5″ as main belt. Upper belt 400 feet long, 9″ lower edge, 8″ top edge, 6″ battery above this. Funnel bases, 1½″ nickel steel for 15 feet above deck. Protective decks, 1½″ upper, 3″ lower. Two Director stations behind upper belt at bases of C.T. communication tubes. Barbettes: bases are 9″ where exposed. Shields to these: 12″ port-plate, 9″ sides, 11″ back, 3″ roof.

Anti-Torpedo Defence.—3″ longitudinal wing bulkheads in way of machinery and magazine spaces. 1″ nickel steel flats under magazines, boilers, and engine rooms. Total weight, 680 tons (included in 7,600 tons total weight of armour given above). Searchlights are 38-inch.

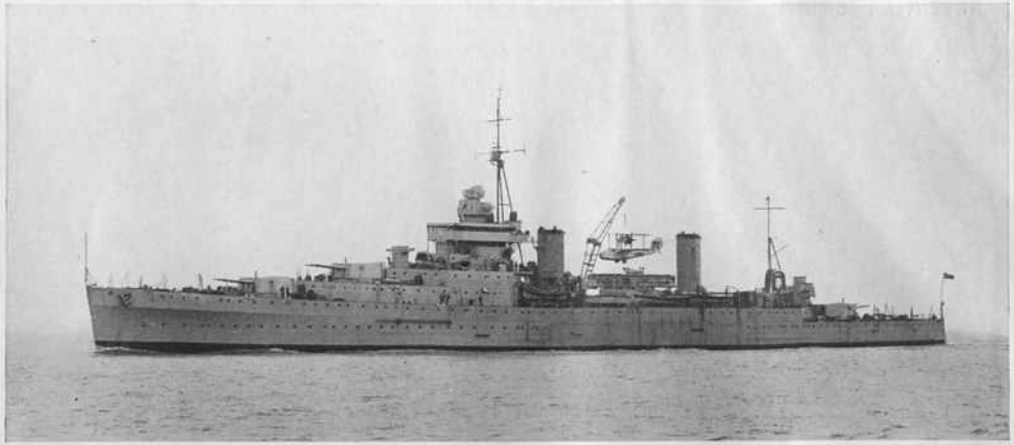
General Notes:—Built under 1908 Programme. Large refits in U.S.A., 1924—25.

Electric Engineering Notes.—Electric installation at 220 volts.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*	*Best recent speed*
Rivadavia	Fore River Co. N.Y. Ship-building	Fore River Co.	May, '10	Dec., 1914	39,750 = 22·5	Babcock	
Moreno			July, '10	Mar., 1915		Babcock	



Bridge details. *Added* 1940, *courtesy Mr. J. Launer.*



1938, *courtesy Messrs. Vickers-Armstrongs, Ltd.*

LA ARGENTINA (March 16, 1937).

(Specially designed as Training Cruiser).

Displacement: 6,000 tons *standard*, 7,500 tons full load. Complement, 556 + 60 cadets. Dimensions: 450 (*p.p.*), 500 (*o.a.*) × 56 × 16¼ feet (*max.*)

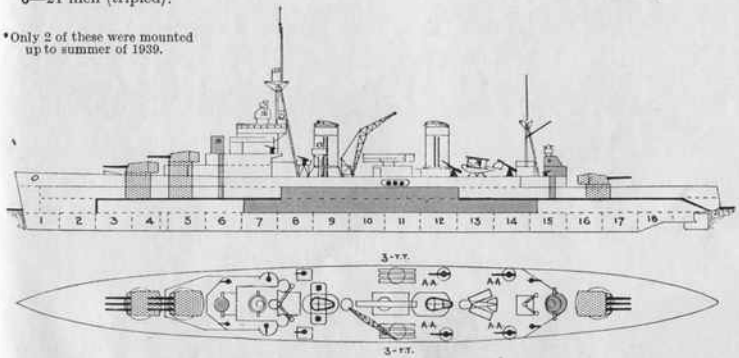
Guns:
- 9—6 inch.
- *4—4 inch AA.
- 2—3 inch (field)
- 4—3 pdr.
- 8—2 pdr. AA.

Torpedo Tubes:
- 6—21 inch (tripled).

Aircraft:
- 2 Seagull Amphibians with 1 Catapult.

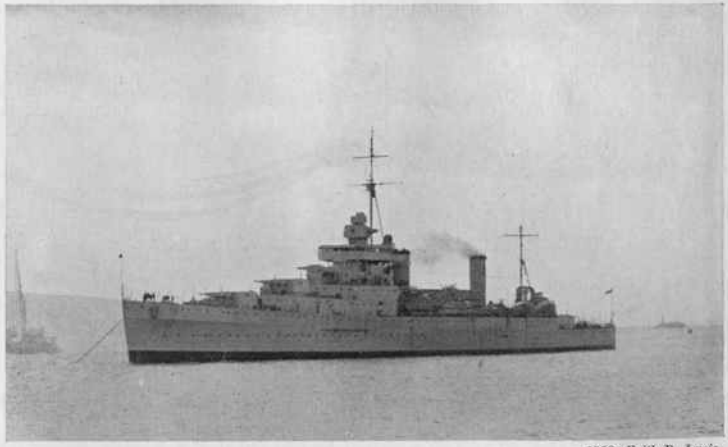
Armour:
- 2" Deck.
- 2" Gunhouses.
- 3" Side.
- 3" C.T.

*Only 2 of these were mounted up to summer of 1939.

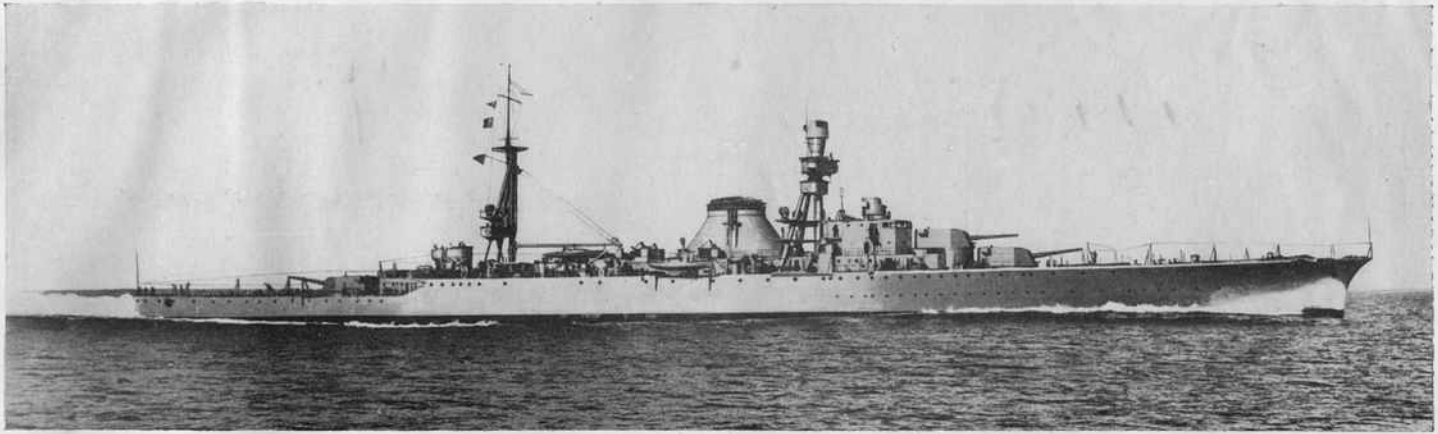


Machinery: Parsons geared turbines. 4 shafts. S.H.P.: 60,000 = 31 kts. Boilers: 4 Yarrow, working pressure 300 lbs. Oil fuel: 1,500 tons.

Note.—Laid down by Vickers-Armstrongs, Ltd., at Barrow, 1935, to replace *Presidente Sarmiento*, and delivered Jan. 31, 1939. Cost 6,000,000 gold pesos (about £1,750,000).



1938, *Keith P. Lewis.*



ALMIRANTE BROWN.

1931 *Photo, favour of Count C. de Grave Sells.*

ALMIRANTE BROWN (Aug. 25th, 1929). **VEINTICINCO DE MAYO** (Aug. 11th, 1929)

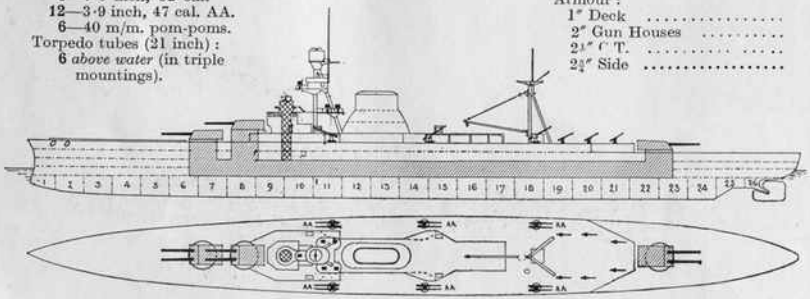
Standard displacement, 6800 tons. (*Full load about* 8600 tons.) Complement, 600.

Length, 533¼ feet. (w.l.) 545¾ (o.a.) Beam, 58 feet. Draught, 16¼ feet.

Guns:
6—7·5 inch, 52 cal.
12—3·9 inch, 47 cal. AA.
6—40 m/m. pom-poms.

Torpedo tubes (21 inch):
6 *above water* (in triple mountings).

Armour:
1″ Deck .....
2″ Gun Houses .....
2½″ C.T. .....
2¾″ Side .....



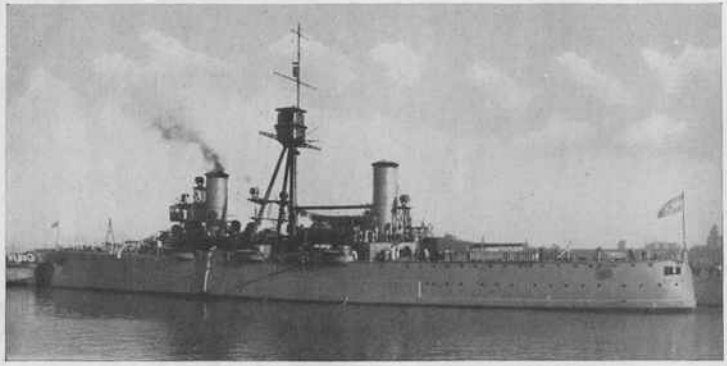
Machinery: Parsons geared turbines. 6 Yarrow boilers. S.H.P. 85,000 = 32 kts. Oil fuel: 1800 tons. 2 screws.

General Notes.—Both laid down 1927, *25 de Mayo* by Orlando at Leghorn, *Alm. Brown* by Odero at Sestri Ponente. Cost £1,225,000 each. Rig shown in plan was that originally proposed, but subsequently modified as in photos. A proposal to add aircraft to their equipment had not materialised up to 1939.

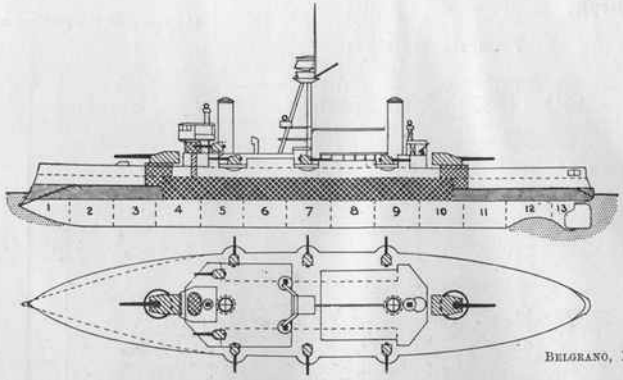
Gunnery Notes—AA. guns are in twin mountings similar to those in Italian *Trento* type.

VEINTICINCO DE MAYO.

1932 *Photos, Official.*



BELGRANO. 1930 *Photo, courtesy of Ministry of Marine.*



BELGRANO, PUEYRREDON.

BELGRANO (ex-*Varese*), (July 25, 1897), Orlando, Leghorn.

PUEYRREDON (ex-*Giuseppe Garibaldi*), (Sept. 25, 1897), Ansaldo, Sestri Ponente.

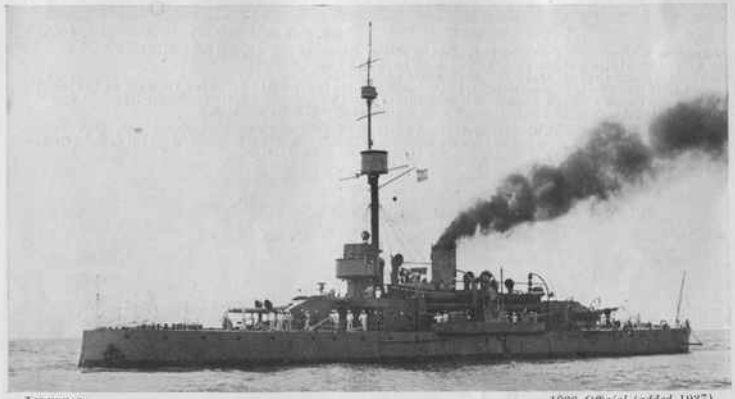
Displacement: 6,100 tons *standard*.
Dimensions: 328 × 59·7 × 23·5 feet.

Guns: *Belgrano:* 2—10 inch, 8—4·7 inch, 4—6 pdr., 2—37 mm. A.A.
Pueyrredon: 2—10 inch, 8—6 inch, 4—6 pdr., 1—37 mm. AA.

Armour: Terni. Belt 6″–3″. Deck 1¼″–2″. Lower deck side 6″. Battery 6″. Barbettes 6″. Gunhouses 6″. C.T. 6″.

Machinery: 2 sets T. Exp. Boilers: 8 Yarrow. H.P. 13,000 = 18 kts. Oil fuel: 1,000 tons.

Notes—These old cruisers are officially rated as coast defence ships. They have been converted to oil fuel and had main deck battery removed, tripod mast fitted and Director firing installed. *Belgrano* completed 1930 by Odero. *Pueyrredon* refitted at Puerto Belgrano; sister ships *Garibaldi* and *San Martin* scrapped 1934.

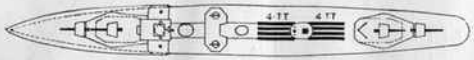


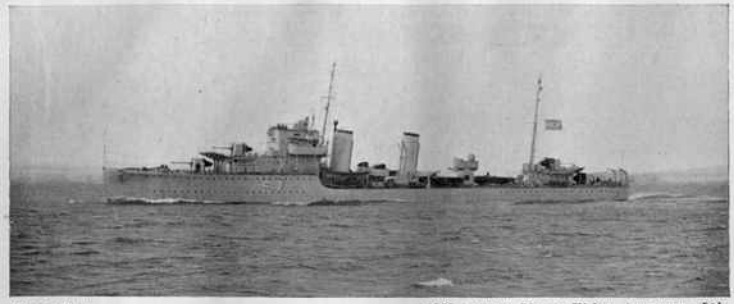
LIBERTAD. 1936 *Official* (*added* 1937)

INDEPENDENCIA (1891), **LIBERTAD** (ex-*Nueve de Julio*), (1890). Both built by Laird's, Birkenhead. Displacement, 2,595 tons. Complement, 196. Dimensions: 240 (*p.p.*) × 43 × 13 feet (*max.*). Guns: 2—9·4 inch, 35 cal. (Krupp), 4—4·7 inch, 40 cal. (Armstrong), 4—3 pdr. Armour (compound): 8″ Belt (amidships), 2″ Deck (flat on belt), 8″ Bulkhead (forward), 6″ Bulkhead (aft), 8″ Barbettes and bases, 5″ Shields to big guns (fronts), 4″ Conning tower. Machinery: Compound vertical. 2 screws. Boilers: 4 double cylindrical. Designed H.P. 3,000 = 13 kts. Oil fuel: 170 tons. (Converted to burn oil, 1925–27).

(All vessels on this page are rated as *Exploradores.*)

7 Corrientes class

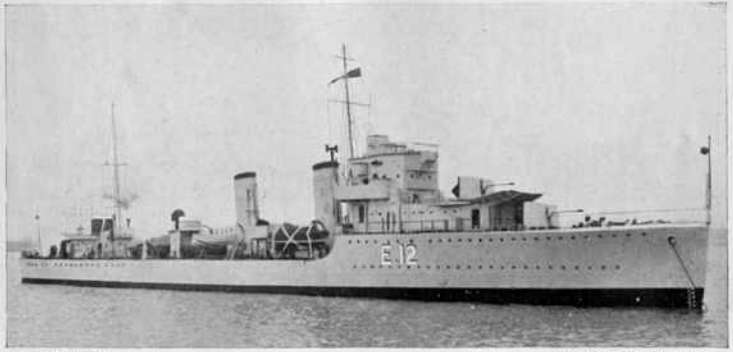




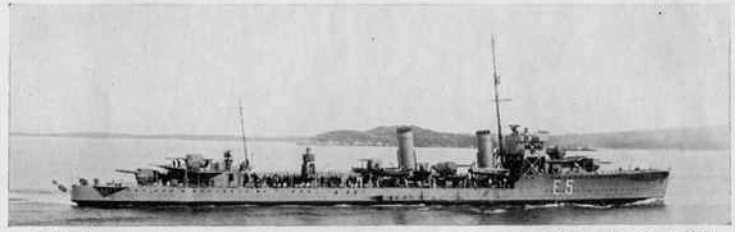
ENTRE RIOS 1938, *courtesy Messrs. Vickers-Armstrongs, Ltd.*

3 *Vickers-Armstrongs (Barrow)* : ***Corrientes, Entre Rios, Buenos Aires,*** (all Sept. 21, 1937).
2 *Cammell Laird* : ***Misiones*** (Sept. 23rd, 1937). ***Santa Cruz*** (Nov. 3, 1937).
2 *Clydebank* : ***San Juan*** (June 24, 1937). ***San Luis*** (Aug. 24, 1937).
Displacement ; 1,375 tons standard. Complement, 130. Dimensions ; 312 (*p.p.*), 320 (*w.l.*) 323 (*o.a.*) × 33 × 8½ feet (*mean* draught). Guns : **4**—4·7 inch, **8** smaller. Torpedo tubes : **8**—21 inch (quadrupled). Machinery : Parsons geared turbines. S.H.P. : 34,000 = 35·5 kts. Boilers : 3, of 3-drum type. Oil fuel : 450 tons.

Notes.—Generally similar to British *Greyhound* type. All laid down 1936 and completed March—Oct. 1938. Cost approaches £400,000 each. 5 more of this type are projected. Pendant Nos. are E 6, *Buenos Aires ;* E 7, *Entre Rios ;* E 8, *Corrientes ;* E 9, *San Juan ;* E 10, *San Luis ;* E 11, *Misiones ;* E 12, *Santa Cruz.*



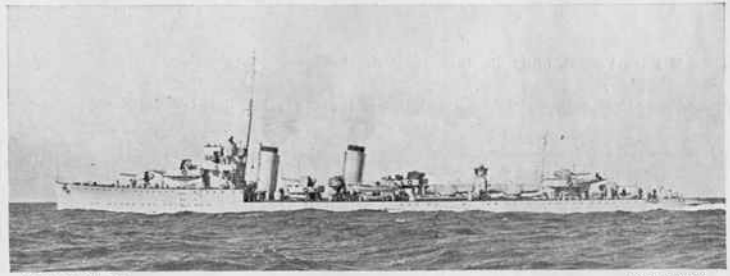
SANTA CRUZ. 1938, *Keith P. Lewis.*



TUCUMAN. 1936, *Official* (*added* 1937).

3 *White* : ***Mendoza*** (July 18th, 1928), ***Tucuman*** (Oct. 16th, 1928) and ***La Rioja*** (Jan. 26th, 1929). All laid down in June, 1927 for completion in June, 1929. Displacement, (*standard*) 1570 tons ; (*deep load*) 2300 tons. Complement, 160. Dimensions : 332½ (*w.l.*), 335 (*o.a.*) × 31½ × 12½ feet. Guns (Vickers-Armstrong) : **5**—4·7 inch, **1**—3 inch AA., **2**—2 pdr. Torpedo tubes : **6**—21 inch, in triple deck mountings. 2 sets Parsons turbines, with single reduction gearing. Steam supplied at 250 lbs. from 4—3 drum water-tube boilers. H.P. 42,000 = 36 kts. 38 kts. maintained for 6 hours on trials by *Mendoza* and *Tucuman ; La Rioja* touched 39·4 kts. without running machinery in excess of designed power. Oil fuel : 540 tons. Radius of action : 4,500 miles at 14 kts.

Note.—Pendant Nos. are : *Mendoza*, E 3 ; *La Rioja*, E 4 ; *Tucuman*, E 5.



JUAN DE GARAY 1939, *Official.*

Cervantes (ex-*Churruca*, Cadiz, June 26th, 1925), ***Juan de Garay*** (ex-*Alcala Galiano*, Cartagena, Nov. 3rd, 1925). Purchased from Spanish Government, 1927. Displacement, 1,522 tons *standard* (2087 tons *full load*). Dimensions : 320 × 31¾ × 10½ feet. Guns : **5**—4·7 inch, **1**—3 inch AA., **4** M.G. Torpedo tubes : **6**—21 inch, in triple deck mountings. **2** D.C. carried. Machinery : 2 sets Parsons geared turbines. S.H.P. : 42,000 = 36 kts. Oil fuel : 540 tons. Radius of action : 4,500 miles at 14 kts. Complement : 175.

Note.—Design generally resembles that of British *Scott* class. Pendant Nos. are E 1 and E 2, respectively.

MENDOZA and CERVANTES *classes.* *Plan by courtesy of Messrs. J. Samuel White & Co., Ltd.*

Destroyers.—*Continued.*

(The four following vessels are rated as *Destructores* and have been relegated to harbour service.)

CATAMARCA. 1933 *Photo, Official.*

2 (*German*) type: ***Cordoba*** (Schichau, Nov. 1910), ***La Plata*** (Germania, Jan., 1911). 1000 tons. 295 × 29½ × 7¾ feet. Armament: 3—4 in. (Beth.), 2—37 mm. AA. 4—21 inch. tubes. 1 D.C. Thrower. Curtis (A.E.G.) turbines. Boilers: 5 Schulz-Thornycroft, altered to burn oil. Designed S.H.P. 28,000 = 26·5 kts. Oil: 200 tons. Endurance: 2700 miles at 15 kts., 715 miles at full speed. Trials (*max.*): *Cordoba*, 34·2; *La Plata*, 34·7. Complement: 99.

2 (*German*) type: ***Catamarca*** (Schichau, Jan., 1911), ***Jujuy*** (Germania, March, 1911). 997 tons. 288¾ × 7¼ × 28 feet. Armament: 3—4 inch (Beth.), 2—37 mm. AA., 4—21 inch tubes. 1 D.C. Thrower. Curtis (A.E.G.) turbines. Boilers: Schulz-Thornycroft, altered to burn oil. Designed S.H.P. 28,000 = 27·2 kts. Oil: 220 tons. Endurance: 3000 miles at 15 kts., 800 miles at full speed. Complement: 99.

Appearance Note.—Cordoba and *La Plata* have ram bow.

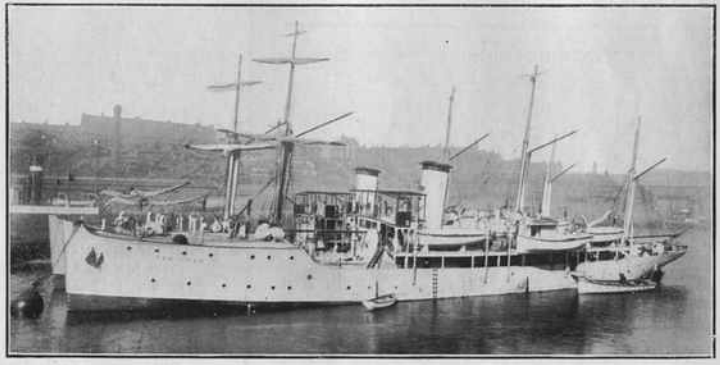
Submarines.

SANTIAGO DEL ESTERO. 1936, *Official*, (*added* 1937).

3 *Cavallini* type: ***Salta,*** (Jan. 17, 1932), ***Santa Fe,*** (July 11, 1931) ***Santiago del Estero.*** (March 28, 1932). Ordered from Cantiere Navale Franco Tosi, Taranto, Oct., 1927. Displacement $\frac{577}{670}$ tons. Dimensions: 220 (*w.l.*), 226½ (*o.a.*) × 21 × 13 feet. 2 Tosi 6-cylinder Diesels. H.P.: 3,000 = 17·5 kts. *surface*. B.H.P.: 1,400 = 9 kts. *submerged*. Armament: 1—4 inch, 1—37 mm. AA. guns, 8—21 inch tubes. Cost £206,000 each, fully equipped. General design resembles Italian *Mameli* type.

Note.—Are differentiated by numerals painted on conning towers.

3 Surveying Vessels



1928 *Photo, by courtesy of Messrs. R. & W. Hawthorn, Leslie & Co., Ltd.*
COMODORO RIVADAVIA, (BAHIA BLANCA behind her).

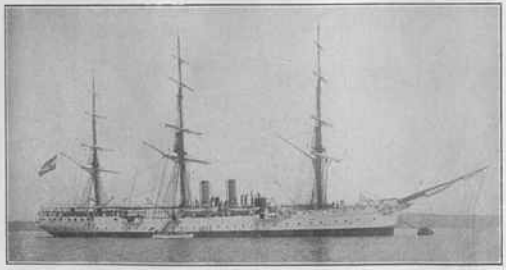
BAHIA BLANCA (ex-*San Luis*) (Oct. 26, 1927). **COMODORO RIVADAVIA** (ex-*San Juan*) (Sept. 27, 1927). Both built by Hawthorn, Leslie & Co., Ltd., Hebburn-on-Tyne. Delivered Feb. 1928. Displacement, 970 tons. Dimensions: 207 (*o.a.*) × 33 × 11 feet draught. Complement, 92. Guns: Nil. Machinery: Single shaft Hawthorn-Werkspoor Diesel engine. B.H.P. 700 = 12 kts. 1 screw. 1 single ended Scotch boiler to supply steam to auxiliary machinery. Oil fuel 85 tons. Radius of action: 4000 nautical miles.

Surveying Vessels—*continued.*

1936, *Official.*

ALFEREZ MACKINLAY (Netherlands, 1914). 783 tons. Dimensions: 193¾ × 28½ × 13 feet. Guns: Nil. H.P. 520 = 10 kts. Used as Lighthouse Inspection Vessel.

Training Ship.



PRESIDENTE SARMIENTO (1898). Built at Birkenhead. 2850 tons. Complement 294. Dimensions: 251$\frac{9}{12}$ × 43¼ × 23¼. Guns: 3—4·7 inch, 45 cal.; 1—4 inch, 2—6 pdr., 2—3 pdr. Torpedo tubes: 3 *above water*. Designed H.P. 2800 = 15 kts. Coal: 330 tons Boilers: 1 Niclausse, 1 Yarrow, 2 cylindrical single-ended. Radius: 4500 miles at 10 kts.

Notes.—Sheathed and coppered. Has accommodation for 400 boys. Refitted by builders, 1926. Relieved as Training Ship in 1939 by *La Argentina*, but is still retained.

Sloops.

Building

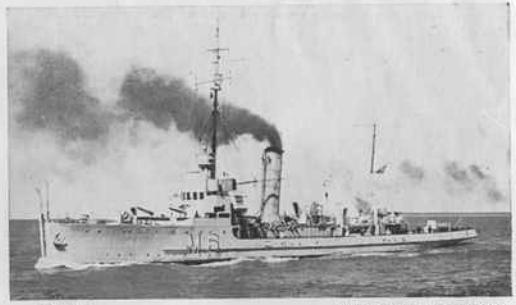
MURATURE, KING. Laid down at Rio Santiago, 1938 and 1939, respectively; 2 more of this type projected. Displacement: 800 tons (*full load*). Dimensions: 252$\frac{7}{8}$ × 29 × 8$\frac{3}{4}$ feet. Machinery: Diesel. B.H.P.: 4,000 = 16 kts. To be attached to Naval College for seagoing training.

Minesweepers.

GRANVILLE 1938, *Official.*

BOUCHARD (March 20, 1936), **DRUMMOND** (June 19, 1936), **GRANVILLE** (Jan. 27, 1937), **SPIRO** (June 7, 1937), **COMODORO PY** (March 30, 1938), and **FOURNIER** (1939), all built at Rio Santiago Naval Yard; **ROBINSON, SEAVER** (both Aug. 18, 1938) by Hansen & Puccini at San Fernando; **PARKER** (May 2, 1937), by Sanchez Shipyard, San Fernando. All laid down 1935–37. Standard displacement: 450 tons; full load, 520 tons. Complement: 62. Dimensions: 164 (*pp.*), 180½ (*o.a.*) × 23½ × 6½ feet (*max.* draught). Guns: 2—3·9 inch, 47 cal., 2—40 mm. AA., 2 D.C. Machinery: 2 sets M.A.N. 2-cycle Diesels. B.H.P.: 2,000 = 15 kts. Oil fuel: 50 tons. Radius of action: 3,000 miles at 10 kts. Fitted for minesweeping.

Note.—These are the first Argentine warships to be built in local shipyards. They are named after distinguished naval officers, and wear pendant numbers M 2, *Drummond;* M 4, *Granville;* M 5, *Fournier;* M 7, *Bouchard;* M 11, *Parker;* M 12, *Seaver;* M 13, *Spiro;* M 14, *Robinson;* M 15, *Py.*



PINEDO. 1936, *Official* (Added 1937.)

BATHURST (ex-*M* 1, ex-*M* 48), **PINEDO** (ex-*M* 6, ex-*M* 79), **SEGUI** (ex-*M* 8, ex-*M* 90), **THORNE** (ex-*M* 9, ex-*M* 101), **GOLONDRINA** (ex-*M* 10, *ex-M* 105). All built in Germany, 1916–19. Former German minesweepers, purchased by the Argentine Government in 1922 and since converted to burn oil. Displacement: 500 tons. Complement: 50. Dimensions: 184 (*w.l.*), 192 (*o.a.*) × 24½ × 7½ feet (*max.* draught). Guns: 3—3 inch. Machinery: 2 sets vertical triple expansion. 1 shaft. I.H.P.: 1,850 = 16 kts. Boilers: 2 Schulz. Oil fuel: 105 tons.

Notes—Segui serves as Diving Tender, *Golondrina* as Admiralty Yacht. All are named after distinguished Argentine naval officers. *Py* scrapped, 1937, after foundering in dock; and *Fournier, Jorge, King* and *Murature* removed from effective list. *Pendant Nos.* M 1, M 6, and M 8—10 are still painted on sides.

River Monitors.

1918 *Photo, Official.*

PARANA (April, 1908) & **ROSARIO** (July, 1908). Both built by Armstrong. Displacement, 1055 tons. Complement, 142. Length, 240 feet. Beam, 32$\frac{3}{4}$ feet. Draught, 7$\frac{7}{12}$ feet. Guns: 2—6 inch Howitzers, 6—3 inch, 2—37 mm. AA., 4 M.G. Armour: 3″ Belt (amidships), 1½″—1″ Deck, 3″ Conning tower. H.P 1600 = 15 kts. 2 Yarrow boilers. 2 screws. Coal: 120 tons. *Nominal* radius, 2400 miles at 10½ kts.

Note.—These two vessels are remarkable in that their main armament consists of howitzers, 13 calibres in length.

Transports (*Trasportes*).

Photo wanted.

USHUAIA. (Rio Santiago, 1939.) Displacement: 1,275 tons (*full load*). Dimensions: 211 × 31½ × 11½ feet. Machinery: 2 sets Diesels. B.H.P.: 1,200 = 12 kts. Fuel: 100 tons.

1939, *Official.*

PATAGONIA (Ostsee Werft, Stettin, 1925.) Displacement: 1,350 tons. Dimensions: 193½ × 27 × 13 feet. H.P.: 446 = 9·5 kts.

1932 *Photo, Official.*

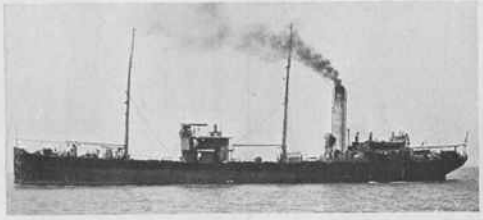
CHACO (ex-*Rio Claro*, 1923), **PAMPA** (ex-*Rio Bueno*, 1923) (both built by Danziger Werft, Danzig). Displacement: 2,100 tons. Dimensions: 273 × 37 × 24 feet. H.P. 1,500 = 11 kts.

Note.—Chaco serves as Submarine Depot Ship.

Oilers (rated as Transports).

1939, *Official.*

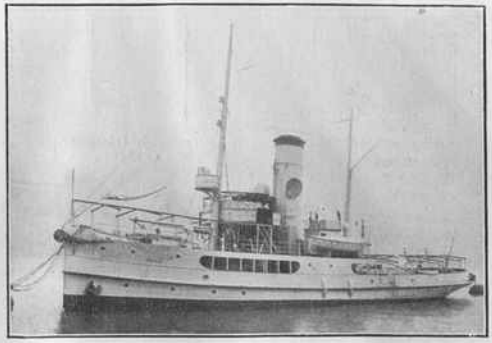
PUNTA ALTA (Puerto Belgrano, 1937.) Displacement: 1,600 tons. Dimensions: 200 × 33½ × 11½ feet. Deadweight capacity: 800 tons.



1932 *Photo, Official.*

MINISTRO EZCURRA (Grangemouth Dockyard Co., Grangemouth, 1914). 2600 tons. Dimensions: 250 × 40 × 18¾ feet. H.P. 1243 = 10·5 kts.

Tugs (*Remolcadores*).



TOBA. 1928 *Photo, by courtesy of Builders.*

MATACO (Jan. 24th, 1928), **TOBA** (Dec. 23rd, 1927). Both built by Hawthorn Leslie. (Completed March, 1928). 339 tons *gross*. Dimensions: 130½ (*p.p.*), 137 (*w.l.*) × 28½ × 13½ feet. H.P.: 1100 = 12 kts. 2 screws. Oil fuel.

1932 *Photo, Official.*

ONA, QUERANDI (Thornycroft, 1913). 345 tons *gross*. Dimensions: 130 × 28 × 12 feet. H.P.: 1200 = 12 kts.

AZOPARDO (ex-*Barstow*, Bethlehem Co., 1919). 437 tons *gross*. Dimensions: 164 × 27½ × 14 feet. H.P. 1800 = 14 kts.

BELGIUM.

Flags.

SHIPS BELONGING TO THE STATE.

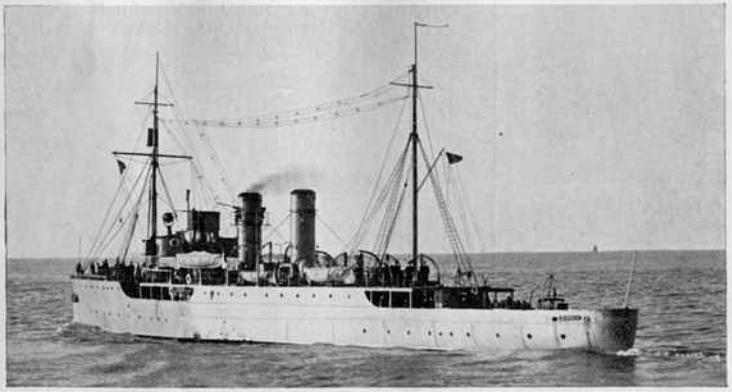
DIRECTEUR GÉNÉRAL DE LA MARINE.

MERCANTILE MARINE

Mercantile Marine (1939) : 200 vessels of 408,418 tons.

Fishery Protection Vessels.

ARTEVELDE. Laid down at the Cockerill Yard at Antwerp in 1939 to replace the *Zinnia*. Displacement : 1,600 tons (about 2,000 tons *full load*). Dimensions : 292 (*pp.*), 328 (*o.a.*) × 33½ × 10¾ feet. Guns : 4—4·1 inch, 2—40 mm. AA. Fitted for minelaying and sweeping (stowage for 120 mines). 30 D.C. carried. Machinery : Geared turbines. 2 shafts. S.H.P. 30,000 = 30 knots. Boilers : Babcock & Wilcox. To cost 30,000,000 francs. Will also be used as Royal Yacht when required.



ZINNIA. 1936, *courtesy Commandant Jean Baneux.*

ZINNIA (ex-British escort vessel of "Flower" class). (Swan Hunter, August, 1915). Purchased for Belgian Navy, June, 1920. Displacement ; 1,200 tons. Dimensions : 250 (*pp.*), 262½ (*o.a.*) × 33 × 11 (*mean*), 11¾ feet (*max.* draught). Guns : 1 M.G. on AA. mounting. Designed I.H.P. : 1,400 = 17 kts., but actually requires *about* 2,000 I.H.P. for this speed. 1 set, triple expansion engines. 1 shaft. Boilers : 2 cylindrical. Coal : 130 tons *normal* ; 250 tons *max.* = *about* 2,000 miles at 15 kts. Complement (as British ship) : 77.

Uniforms.

Commandant.

Premier Lieutenant.

Lieutenant.

Patrol Vessels.

A Fast Motor Patrol Vessel was to have been built.

WIELINGEN. 1938, *Lieut. W. A. Fuller, R.N.V.R.*

2 ex-German torpedo boats of the war-built "A" type, the **WIELINGEN** and **WESTDIEP,** still exist, without armament, being employed for training personnel and on fishery protection duties. Built in 1915. Displacement : 230 tons. Original speed, 23 kts.

Sail Training Ship.

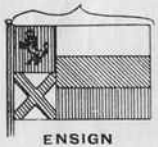
For Photo, see Addenda.

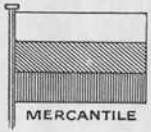
MERCATOR (Ramage & Ferguson, Leith, Dec. 9, 1931). Barquentine. Displacement : 1,200 tons (770 tons *gross*). Complement : 80. Dimensions : 190½ × 34⅔ × 14 feet. Auxiliary Diesel. B.H.P. : 500 = 11 kts. Sail area : 13,584 sq. feet.

BULGARIA.

Note that the red of the flag is crimson.

▥ = Red. ▭ = White. ▨ = Green. ⁝⁝ = Yellow.





Flags.

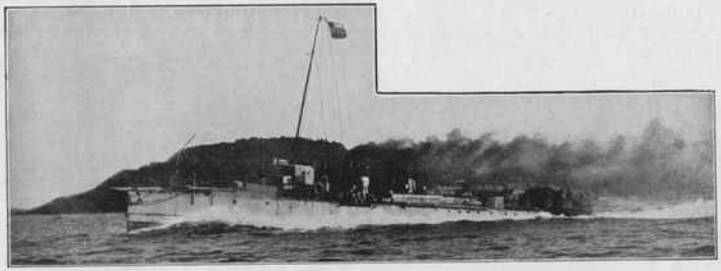
Jack: A white flag with a green saltire and superimposed over all the Cross of St. George.

Minister of War and Marine :—General Daskaloff.

Mercantile Marine: 14 steamers of 17,476 tons.

Torpedo Boats.

2 *Motor Type:* Built by Lürssen, Vegesack, 1938-39. Displacement: 60 tons. Complement, 18: Dimensions: 92 × 14½ × 5½ feet. Armament: 1 M.G. AA., 2—21 inch T.T. Machinery: 3 Mercedes-Benz engines. B.H.P. 3,150 = 36 kts.



4 *Crensot* boats: ***Smyeli, Khrabri, Derzki, Strogi*** (built in sections in France; reassembled at Varna. 1907-8). 100 tons. Dimensions: 126½ × 13½ × 8½ feet. Armament: 2—47 mm., 1 M.G., 2—18-inch torpedo tubes. Designed H.P.: 2,000 = 26 kts. 1 screw. Du Temple boilers. Coal: 27 tons. Complement: 23. Reported to be fitted for minesweeping.

Motor Patrol Boats.

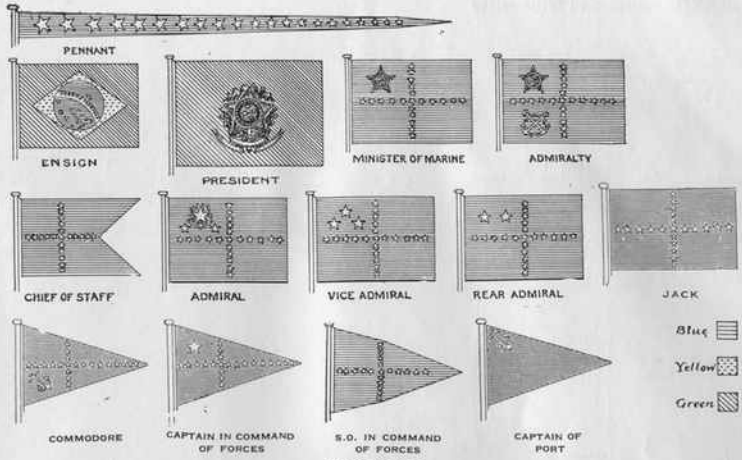
Belomoretz (ex-French C 27), ***Chernomoretz*** (ex-C 80). Both purchased 1922. 77 tons. 3 sets of 220 B.H.P. standard petrol motors, totalling 660 B.H.P. = 17 kts. Petrol: 9 tons. Endurance: 700 miles at 10 kts. Guns: 1—47 mm., 2 M.G. Complement: 26. Are differentiated by the numerals 1 and 2, painted on bows.

Auxiliary Sail Training Vessels.

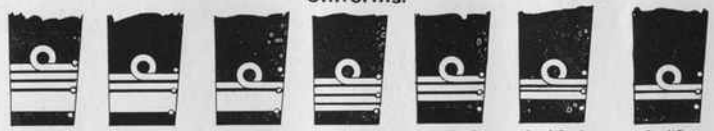
Assen, (1912). 240 tons. Guns: 2—65 mm., 1 M.G. H.P.: 120 = 7 kts. (Refitted 1933-34.)

Kamcia (1898). Speed 10 kts. (Refitted 1925.)

BRAZIL.



Uniforms.



Almirante. *(Admiral.)* | Vice-Almirante. *(Vice-Admiral.)* | Contra-Almirante. *(Rear-Admiral.)* | Capitão de Mar e Guerra. *(Captain.)* | Capitão de Fragata. *(Commander.) (Senior.)* | Capitão de Corveta *(Commander.) (Junior.)* | Capitão Tenente. *(Lieut.-Commander.)*

SPECIALIST BADGES.

Primeiro Tenente. *(Lieut.)* | Segundo Tenente. *(Sub-Lieut.)* | Guarda Marinha. *(Midshipman.)* | Reserve Officer.

Aviation. | Engineers. | Harbour Master. | Honorary Rank.

All have three buttons towards back of sleeves and across stripes. Deck, Engineer and Aviation Branches all have curl. Other branches have not.

Caps:—As British Navy.

Minister of Marine :—Vice-Admiral Henrique Aristides Guilhem.

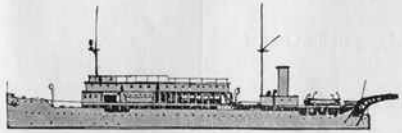
Chief of Naval Staff :—Vice-Admiral José Machado de Castro e Silva.

Naval Agent in London :—Engineer Captain Natal Arnaud.

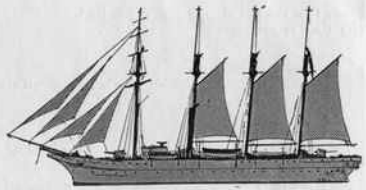
Mercantile Marine.

(From "Lloyd's Register," 1939). 305 vessels of 487,820 gross tonnage.

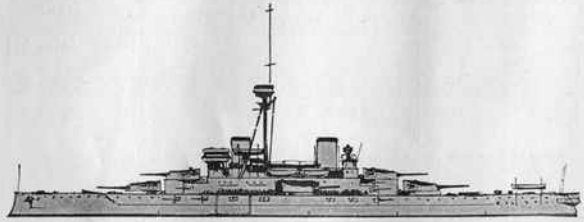
CARIOCA *class*



CEARÁ (*S/M. Depot Ship*).
(*Double hulls at stern.*)

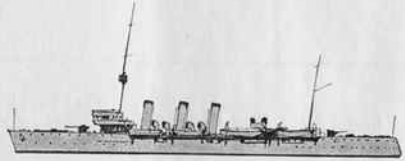


ALMIRANTE SALDANHA



SÃO PAULO.
(*Being reconstructed as Minas Gerais.*)

MINAS GERAIS.

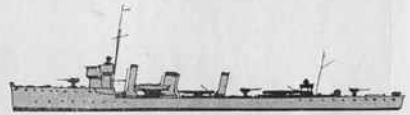


BAHIA *class.*

Guns in Service.

Notation.	Calibre.		Length in calibres	Weight of A.P. shell.	Muzzle Velocity.	*Max.* penetration A.P. capped at K.C. at 5000 yards.	*Max.* penetration A.P. capped at K.C. at 3000 yards.	Danger Space against average ships at 10,000 yards.	Danger Space against average ships at 5000 yards.	Danger Space against average ships at 3000 yards.	*Service* rounds per minute
	inch.	c/m.	cals.	lbs.	ft. secs.	inch.	inch.	yds.	yds.	yds.	
HEAVY	12	*30·5*	45	850	2800	...	...	...	...	...	2
LIGHT	4·7	*12*	45	48	2780						
	4·7	*12*	50	45	2630	$1\frac{3}{4}$	3	153	55	11	8
	4·7	*12*	45	48	2286						
	4	*10*	50	..	..						
	3.9	*10*	47	30	1968						
	3	*7·6*	50	14	2560						

PIAUHY *class.*



MARANHÃO.

TAMOYO *class.*

HUMAYTÁ.

MINAS GERAIS (Sept. 10, 1908).
SÃO PAULO (April 19, 1909).

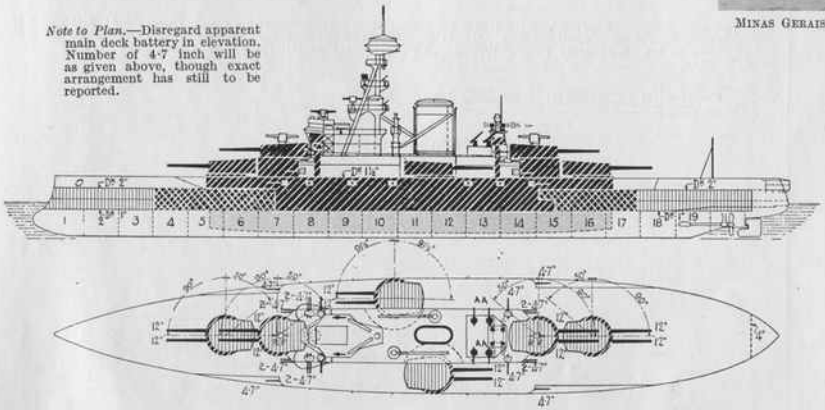
Normal Displacement: 19,200 tons.
Complement: 1,087 and 1,113, respectively.
Dimensions: 533 (*w.l.*), 500 (*p.p.*) × 83 × 25 feet (*max.*).

Guns (Armstrong):
12—12 inch, 45 cal.
14—4·7 inch, 50 cal.
4—3 inch AA.
4—40 mm. AA.
8 M.G.

Armour (Krupp):
9″ Belt .....
6″—4″ Belt (bow) N.C. ...
6″—4″ Belt (aft) N.C.....
9″—6″ Upper belt.....
9″ & 3″ Bulkheads.....
9″ Battery (main deck) ...
9″—8″ Turrets (K.C.)... ..
12″ Conning tower (fore)
9″ Conning tower (aft) ...
8″—3″ Com. Tubes.....
1½″ Torp. Pro. Bulkh'd...

MINAS GERAIS 1940, *Official.*

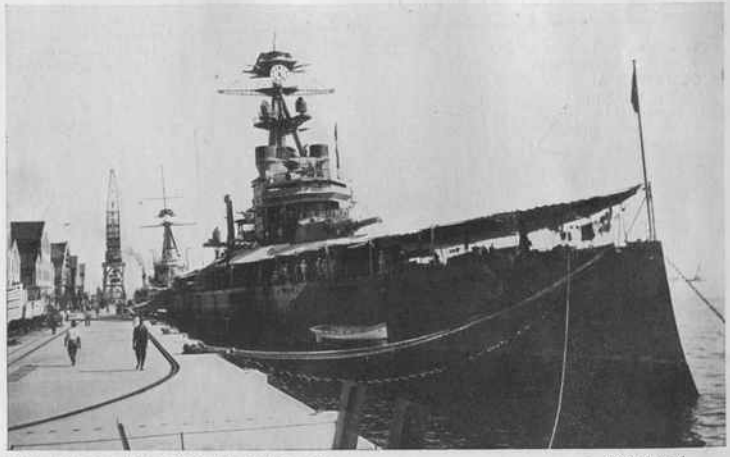
Note to Plan.—Disregard apparent main deck battery in elevation. Number of 4·7 inch will be as given above, though exact arrangement has still to be reported.



Machinery: 2 sets triple expansion. 2 shafts. S.H.P.: 30,000 = 21 kts.
Boilers: 6 Thornycroft. Oil fuel only.

General Notes.—Both ships reconstructed and modernised, in 1934-39 and 1937-40, respectively.

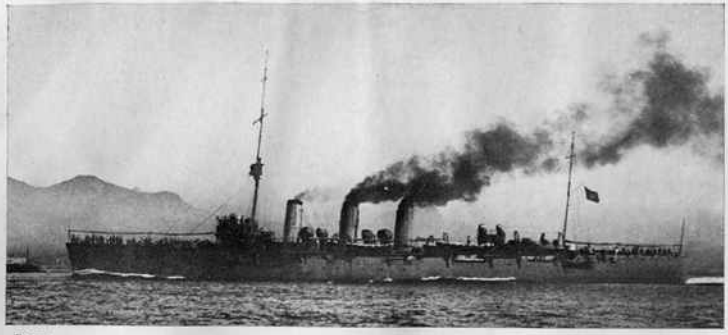
Engineering Notes.—The former No. 1 stokehold was converted into four oil-fuel deep-tanks,—the space available between top of tanks and main deck being used as distilling plant, with all necessary auxiliaries. 12 side coal bunkers converted into wing oil-fuel tanks, there being 2 service oil tanks for each stokehold. All upper coat bunkers removed. Internal arrangements entirely changed, in accordance with the requirements of new uptakes. The whole Thornycroft supply includes:—main and auxiliary feed water pumps, oil fuel pumps, oil heaters and filters, teledep-installation, ventilating-plant, pipes, etc., etc.



MINAS GERAIS, with S. PAULO lying astern of her. 1937 *Official.*

Name.	*Builder.*	*Machinery.*	*Laid down.*	*Completed.*	*Trials. 30 hour at ¾ Full power*	*Boilers.*	*Refit.*
M. Geraïs	Armstrong	Vickers	1907	Jan.'10	16,067=19·85 25,517=21·2	Thornycroft	1934-39
S. Paulo	Vickers	Vickers	1907	July '10		Babcock	1937-40

Cruisers (*Cruzadores*).



BAHIA

Added 1936, *courtesy Eng. Capt. Natal Arnaud.*

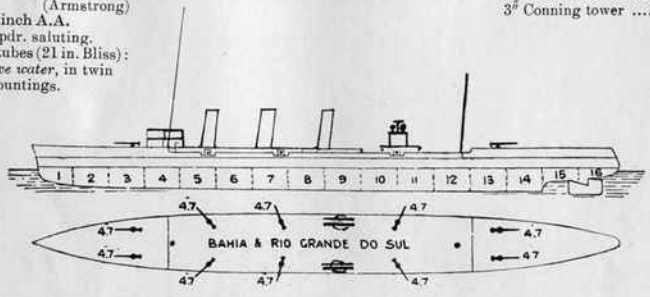
BAHIA (Jan., 1909), **RIO GRANDE DO SUL** (April, 1909).

Normal displacement 3150 tons. Complement 368.

Length, { (*p.p.*), 380 feet. / (*o.a.*), 401½ ,, } Beam, 39 feet. *Mean* draught, 13 feet 7½ ins.

Guns:
10—4·7 inch, 50 cal. (Armstrong)
4—3 inch A.A.
4—3 pdr. saluting.
Torpedo tubes (21 in. Bliss):
4 *above water*, in twin mountings.

Armour:
1½″ Deck.....
3″ Conning tower .....



Machinery: 3 Brown-Curtis geared turbines. 3 shafts. Boilers: 6 Thornycroft oil-burning. S.H.P. 22,000 = 27 kts. 1926 *Trials*: H.P., 23,000=28·6. Oil fuel: 640 tons. Endurance: *about* 2400 miles at 24 kts., 3092 miles at 18 kts., 6600 miles at 10 kts.

Gunnery Notes.—Fire control originally consisted of voice tubes from control stations to bridge and to plotting rooms on second deck—thence to battery. 1 R.F. and 2 S.L., 1 S.L. over Chart house and 1 on after S.L. platform. These arrangements have been improved, and Director system is now installed.

General Notes.—Built by Armstrong; engined by Vickers; both begun 1908 (under 1907 Naval Programme) and completed 1910. Completely refitted 1925-26, by Companhia Nacional de Navegação Costeira, Rio, new engines and boilers (to burn oil fuel) being installed by Messrs. Thornycroft. Heating Surface 26,027 sq. ft.

1 + 9 (*building*) Destroyers

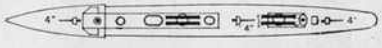
6 *British design*: **Acre, Ajuricaba, Amazonas, Apa, Araguary, Araguaya.** All being built in Brazil. *Amazonas* and *Araguaya* laid down at Rio in July 1940. Displacement: 1,340 tons. Dimensions: 323 (*o.a.*) × 33 × 8½ feet (*mean*). Guns: 4—4·7 inch, 7 smaller. Tubes: 8—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P. 34,000=35.5 kts. Boilers: 3 of 3-drum type. Oil fuel: 450 tons. Complement: 150.

3 *U.S.A.* type: **Greenhalgh, Marcilio Dias** (July 20, 1940), **Mariz e Barros.** Building at Ilha das Cobras, Rio de Janeiro, with material imported from U.S.A. Displacement: 1,500 tons. Dimensions: 357 (*o.a.*) × 34⅜ × 9⅝ feet (*mean*). Guns: 5—5 inch, 38 cal. (dual purpose), 4 M.G. Tubes: 12—21 inch (quadrupled). Machinery: Geared turbines by General Electric Co. S.H.P.: 42,800 = 36·5 kts. 4 high pressure watertube boilers of Express Type by Babcock & Wilcox. Oil fuel: 500 tons. Radius: 6,000 miles. Complement: 160.

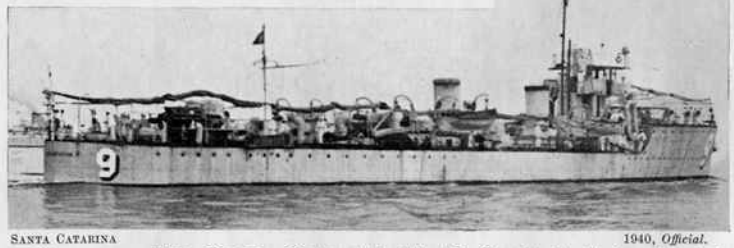
Note.—These ships will be generally similar to *Mahan* class, of U.S. Navy, with 2 funnels, and will be armed with guns of American manufacture.

Photo added 1923.

1 *Thornycroft* type. **Maranhão** (ex H.M.S. *Porpoise*, 1913). Displacement: 934 tons. Dimensions: 265½ × 26½ × 9½ (*minimum*), 10½ (*maximum*) draught. Guns: 3—4 inch, 1—2 pdr. Tubes: 4—21 inch, in pairs. Designed H.P. 22,500=28 kts. Machinery: Parsons turbines. Thornycroft boilers. Oil: 250 tons. Complement: 117.



Torpedo Boats.



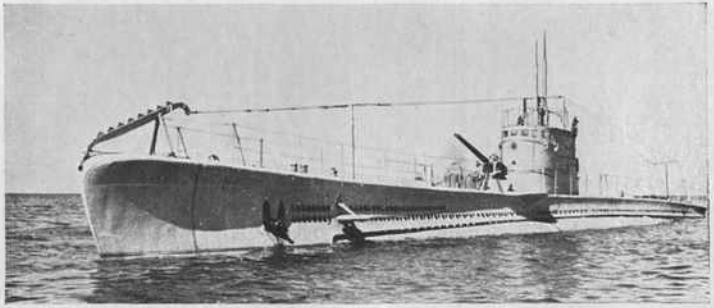
SANTA CATARINA

1940, *Official.*

6 *Yarrow* type: **Mato Grosso, Piauhy** (both 1908), **Rio Grande do Norte, Parahyba, Santa Catarina** (all 1909), **Sergipe** (1910). Displacement 560 tons (*full load*, 640 tons). Dimensions: 240 × 23½ × 7½ feet (*Max.* draught). Armament: 2—4 inch, 4—3 pdrs., 2—18 in. tubes. Designed H.P. 8000 = 27 kts. Machinery: 2 sets triple expansion reciprocating. 2 double-ended Yarrow boilers. Majority of these boats retubed 1917-18. Coal: 140 tons. Nominal radius: 1600 miles at 15 kts. On acceptance trials with 6563 to 8877 H.P. they made 27·1 to 28·7 kts. No effective means of controlling fire of guns or torpedo tubes. Complement: 110.

Note.—Originally there were 10 vessels in this class, but *Alagoas*, *Para*, *Parana* and *Amazonas* have been scrapped.

Submarines.



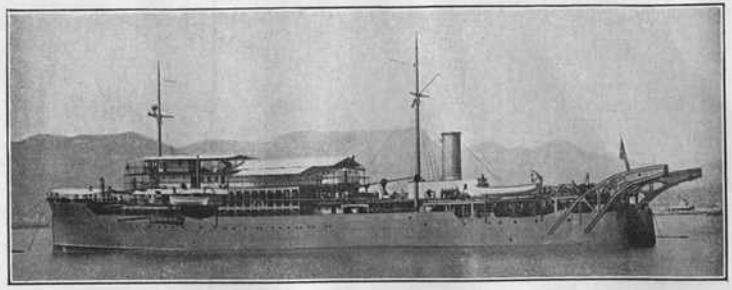
TUPY. 1937, *courtesy Engineer Captain Natal Arnaud.*

3 *Odero-Terni-Orlando* type. **Tamoyo** (ex-*Ascianghi*, Feb. 14, 1937), **Tupy** (ex-*Neghelli*, Nov. 28, 1936), **Timbyra** (ex-*Gondar*, Dec. 30, 1936). Built at Spezia. Displacement: 620 tons on *surface*, 853 tons *submerged*. Dimensions: 197½ × 21 × 14½ feet. Armament: 1—3·9 inch, 47 cal., 2—13 mm. M.G., 6—21 inch torpedo tubes. Fiat Diesels. H.P.: 1,350/800 = 14/7·5 kts. Complement: 37. All three delivered in September, 1937. Are generally similar to Italian *Perla* type.

HUMAYTÁ. *Added* 1939, *courtesy W. H. Davis, Esq.*

1 *Ansaldo* type: **Humayta.** Ansaldo San Giorgio Co., Spezia, April, 1927. Displacement: 1450 tons *surface*, 1884 tons *submerged*. Dimensions: 284¼ × 25½ × 14 feet. Fiat type Diesel engines. Designed H.P. $\frac{4000}{2200} = \frac{18·5}{10}$ kts. Armament: 1—4·7 inch, 45 cal., 4—13 mm. AA., 6—21 inch tubes (4 bow, 2 stern). Similar in general design to Italian *Balilla* type (*vide* notes in Italian Section for further details). Ordered in 1926 and completed in 1927, but not delivered in Brazilian waters until two years later. Complement: 74.

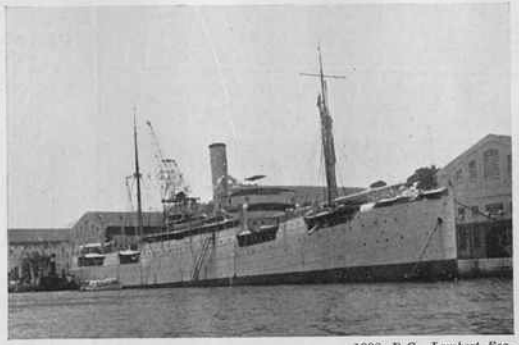
Submarine Depot Ship and Salvage Vessel.



1917 *Photo, by courtesy of the Fiat-San Giorgio Co.*

CEARÁ (Spezia, 1915). Length (*p.p.*) 328 feet. Beam: 52 feet. Displacement and draught (with all stores) vary thus: (a) with dock empty and dock-gate closed 4100 tons at 14 feet draught; (b) with dock-gate open and dock flooded to float submarine in, 4130 tons at 14½ feet; (c) with gate closed and submarine docked, 4560 tons at 15 feet; (d) with gate closed and submarine under hydraulic pressure test in dock, 6460 tons at 20½ feet; (e) with dock empty and gate closed and when raising submarines by double cranes at stern, 4615 tons at 15 feet. Machinery: 2 sets 6-cylinder, 2-cycle Fiat-Diesel engines. 4100 B.H.P. = 14 kts. Fuel: 400 tons (own bunkers) + 240 tons for submarines. Radius of action 400 miles at 10 kts. Guns: 4—4 inch, 2 smaller. Built by Fiat-San Giorgio Co. Completed 1916. Complement: 352.

Repair Ship

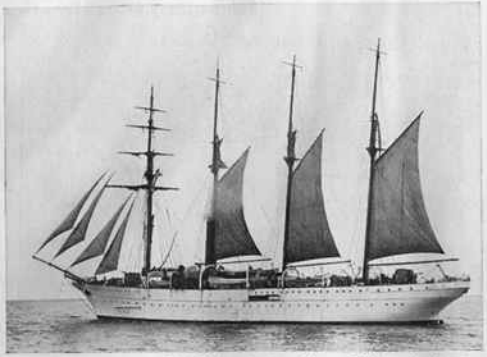


1938, *D.G. Lambert, Esq.*

BELMONTE (ex-German S.S. *Valesia*, Rostock, 1912). 5,227 tons *gross*. Dimensions: 364¾ × 51 × 15 feet. Guns: 4—4·7 in., 2—6 pdr. H.P.: 2,700 = 12 kts. Can take about 6,500 tons as cargo. Complement: 338.

BRAZIL — Miscellaneous

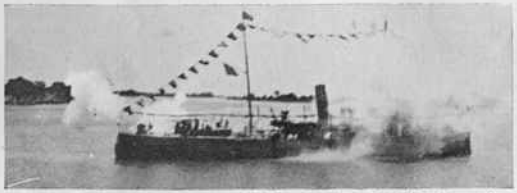
Training Ship.



1934 *Photo, Courtesy Messrs. Vickers-Armstrongs.*

ALMIRANTE SALDANHA (Vickers-Armstrongs, Ltd., Barrow, Dec. 19, 1933). Displacement, 3,325 tons. Complement: 356 + 100 midshipmen and cadets. Dimensions: 262 (*pp.*), 307½ (*o.a.*) × 52 × 18½ feet (*mean* draught). Guns: 4—4 inch, 1—3 inch AA., 4—3 pdr., 1—13 mm. AA., 2 M.G. Torpedo tubes: 1—21 inch. Total sail area, 25,990 sq. feet. Auxiliary Diesel engine, B.H.P. 1,400 = 11 kts. (12 kts. reached on trials). Radius of action, 12,000 miles. Cost £314,500. Instructional minelaying gear is included in equipment.

River Gunboats.



1937, *Courtesy Eng. Capt. Natal Arnaud.*

OYAPOCK (ex-*Amapa*). (Thornycroft, 1907). Displacement, 195 tons. Dimensions: 130 (*pp.*). 137 (*o.a.*) × 18 × 6 feet. Guns: 2—3 pdr., 2 M.G. Machinery: Triple expansion. 2 shafts. H.P.: 450 = 14 kts. 1 Babcock watertube boiler. Coal: 51 tons. Complement: 51.

AMAPÁ. Displacement: 290 tons. Dimensions: 104 × 24 × 10½ feet. Guns: 2—57 mm., 6 M.G. Complement: 39.

River Monitors.

1938, *Courtesy Eng. Capt. Julio Regis Bittencourt*

PARNAHYBA (Sept., 1937). Laid down at Rio, June 11, 1936, and completed Nov., 1937. Displacement: 620 tons. Complement: 90. Dimensions: 180½ (*o.a.*), 178½ (*pp.*) × 33½ × 5 feet (*max.* draught). Guns: 1—6 inch, 2—3·4 inch howitzers, 2—47 mm., 4 M.G. Armour: 3″ side and partial deck protection. Machinery: 2 sets vertical triple expansion by Thornycroft. 2 shafts. I.H.P.: 1,300 = 12 kts. Boilers: 2 of 3-drum type, working pressure 250 lbs. Oil fuel: 70 tons.

1940, *Official.*

PARAGUASSÚ (ex-*Victoria*). (Rio, Dec. 22, 1938). Displacement: 430 tons. Dimensions: 146½ × 34½ × 5 feet. Guns: 1—4·7 inch, 2—3·4 inch howitzers, 2—47 mm., 4 M.G. Machinery: 2 sets triple expansion, by J. S. White & Co., Ltd., Cowes. I.H.P. 1,100 = 13 kts. Boilers: 2 of 3-drum type. Oil fuel: 40 tons. Complement: 88.

1916 *Photo, Abrahams.*

PERNAMBUCO (Rio, 1905, completed 1910). 470 tons. Dimensions: 146 × 24 × 5½ feet. Guns: 2—4·7 inch, 2—3 pdr. Armour: 6·6″–4″ belt, 4″ deck, 3½″ conning tower, 6″ turret. H.P.: 800 = 11 kts. 2 shafts. Coal: 45 tons. Took 20 years to build, having been laid down in 1890. Boilers renewed by Messrs. J. S. White & Co., Ltd., 1937. Complement: 81.

Minelayers (*Mineioros*)

CARIOCA. 1939, *Official.*

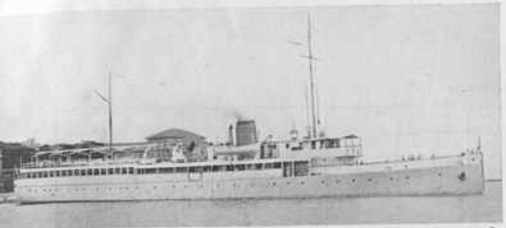
CANANÉA (Oct., 1938). **CARIOCA** (1938). **CAMOCIM, CABEDELO, CARAVELAS, CANAVIERAS.** Last 4 launched Sept.–Oct., 1939. All built at Rio. (First pair laid down on Nov. 6, 1937). Displacement: 552 tons. Dimensions: 188¾ × 25½ × 8 feet (*mean*). Guns: 2—4 inch, 4 M.G. AA. 50 Mines. Machinery: 2 sets vertical triple expansion by Thornycroft. I.H.P.: 2,200 = 14 kts. (exceeded on trials). Oil fuel: 70 tons. Complement: 97.

1937, *Courtesy Eng. Capt. Natal Arnaud.*

ITAPEMERIM (ex-*Maria do Couto*). Displacement: 340 tons. Dimensions: 116 × 21 × 12 feet. Guns: 2—3 pdr. Mines: 30. Complement: 45.

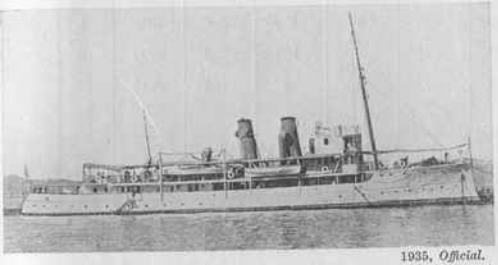
ITACURUSSÁ (Ramage & Ferguson, Leith, 1901). Displacement: 210 tons. Dimensions: 95½ (*pp.*), 102½ (*o.a.*) × 19½ × 10½ feet (*max.* draught). Guns: 1—37 mm. Machinery: Reciprocating. I.H.P.: 110 = 10 kts. Coal: 35 tons. Complement: 45.

Surveying Vessels (*Navios Hydrograficos*).



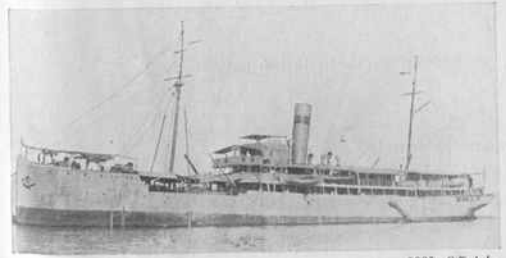
1937, *Courtesy Eng. Capt. Natal Arnaud*

JACEGUAY (ex-*Flecha*, ex-*H.M.S. Fairfield*), (Clyde Shipbuilding Co., 1919). Ex-minesweeper, purchased for use as a surveying vessel in 1937. Displacement: 710 tons. Dimensions: 231 (*o.a.*) × 28½ × 7½ feet. Guns: None reported. I.H.P.: 2,200 = 16 kts. Coal: 185 tons. Complement: 79.



1935, *Official.*

RIO BRANCO (ex-Canadian Government vessel *Margaret*). (Thornycroft, 1914). Displacement: 896 tons. Dimensions: 200 × 32 × 10 feet. Guns: 2—6 pdr. I.H.P.: 2,000 = 15 kts. Coal: 200 tons. Complement: 91.



1935, *Official.*

JOSÉ BONIFACIO (ex-*Itapema*, 1909), **VITAL DE OLIVEIRA** (ex-*Itauba*, 1910). Both built by Ailsa S.B. Co., Troon. Displacement: 1,300 tons. Dimensions: 270 × 42 × 14 feet. Guns: 2—4 inch, 2—6 pdr. H.P.: 540 = 9 kts. Complement: 152.

Oilers.

(For photo, see Addenda.)

POTENGÍ (Papendrecht, March, 16, 1938). Displacement: 600 tons. Dimensions: 175½ (*pp.*), 178¾ (*o.a.*) × 24½ × 6 feet. Diesel engines. 2 shafts. B.H.P.: 550 = 10 kts. Complement: 19.

1938, *D. G. Lambert, Esq.*

MARAJÓ (ex-*Malistan*), (Bartram & Sons, Sunderland, 1924). Purchased 1936. Displacement: 7,930 tons; 5,553 tons *gross*. Dimensions: 400 × 52¼ × 25¼ feet (*mean*). Machinery: Triple expansion. H.P.: 3,100 = 10 kts. Complement: 92.

NOVAES DE ABREU (Rotterdam, 1918). Displacement, 500 tons. Dimensions: 140 × 23 × 12 feet. H.P.: 400 = 10 kts. Oil: 400 tons. Complement: 34.

Minesweepers.

IGUAPE (ex-*Salles de Carvalho*). (Wivenhoe, 1908). **ITAJAHY** (ex-*Rio Pardo*). (Geestemunde, 1908). Displacement: 150 tons. Dimensions: 85 × 19 × 9 feet. Guns: 1—47 mm., 2 M.G. I.H.P.: 350 = 10 kts. Complement: 28.

Tugs

L. PITTA. 1938, *Courtesy Eng. Capt. N. Arnaud.*

LAURINDO PITTA. (1910). Built by Vickers. Displacement: 514 tons. Dimensions: 130 × 26 × 15 feet. Machinery: Triple expansion, 2 shafts. I.H.P: 850 = 11 kts.

Seagoing Tugs (*Rebocadores*).—*continued.*

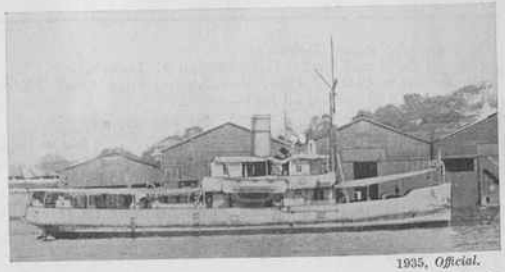
1935, *Official.*

ANNIBAL MENDONÇA (ex-*Times*, ex-*St. Keyne*). (1919). Displacement: 820 tons. Dimensions: 135 × 30 × 14½ feet. Guns: 2—3 pdr. I.H.P.: 1,200 = 12 kts. (present best speed, 10 kts.). Coal: 240 tons. Complement: 45. **D.N.O.G.**, of this type, sunk in Ilha Grande Bay.

H. PERDIGÃO. 1937, *Courtesy Eng. Capt. Natal Arnaud.*

HEITOR PERDIGÃO, MUNIZ FREIRE. (1921). Displacement: 500 tons. Dimensions: 132 × 26 × 15 feet. Guns: 2—3 pdr. I.H.P.: 850 = 11 kts. Complement: 45.

Lighthouse Tenders (*Navios Pharoleiros*).

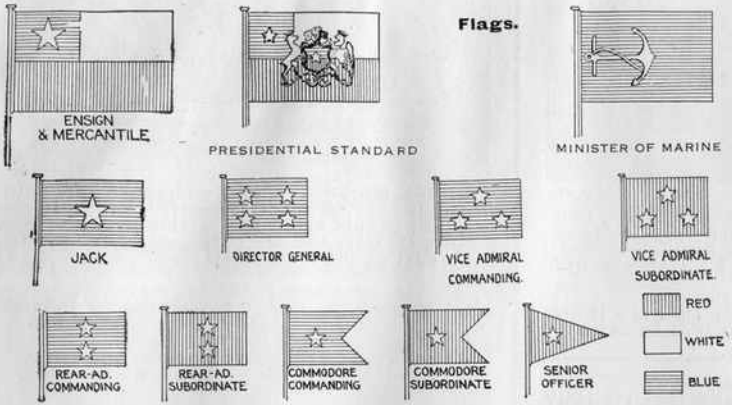


1935, *Official.*

MARIO ALVES, LAHMEYER, Displacement: 280 tons. Dimensions: 116¼ × 22¾ × 11 feet. Guns: 2 M.G. Complement: 38.

CHILE.

Flags.



Uniforms.

	Vice Almirante.	Contra-Almirante	Capitan de Navio.	Capitan de Fragata.	Capitan de Corbeta.	Teniente 1°	Teniente 2°	Guardia Marina	Aspirante
Corresponding British or U.S.	*Vice-Ad.*	*Rear-Ad.*	*Captain.*	*Commander.*	*Lieut.-Comdr.*	*Lieut. (Senior).*	*Lieut. (Junior).*	*Sub.-Lieut.*	*Midshipman.*

Other Branches the same with colours as follows:—Paymasters (white), Surgeons (red), Chaplains (purple).

Minister of National Defence :
Chief of the Naval Staff : Rear-Admiral E. Daroch.
Commander-in-Chief of Fleet: Vice-Admiral Julio Allard Pinto.
Personnel: About 6000, all ranks.

Naval Bases.

TALCAHUANO. Two dry docks, 614 × 87 × 30½ feet and 800 × 116 × 36 feet respectively. One small floating dock, 216 × 42 × 15 feet. Gunnery, Torpedo, Submarine, and other Training Establishments here.

VALPARAISO. One small steel floating dock privately owned, 314 × 65 × 21 feet (4500 tons capacity). Staff College and Naval Academy for training of executive and Engineering branches here, also schools for Communications, Coast Artillery, Navigation, etc.

There is also a small steel floating dock at Mejillones.

Naval Ordnance. (All details unofficial.)

	Type*	Calibre. Inches.	Calibre. Cm.	Length (cals.)	Weight of Gun. (tons.)	Weight of Proj. (lbs.)	Weight of Charge. (lbs.)	M.V. (ft.-secs.)	M.E. (ft.-tons.)	Max. R.P.M.
HEAVY	A	14	*35·6*	45	85	1585	324	2500	..	2
	A	8	*20·3*	45	18·5	210	44	2650	10,226	4
	A	8	*20·3*	40	15	..	..	2582	..	..
MEDIUM	A	6	*15·2*	50	8¾	100	31	3000	6240	9
	A	6	*15·2*	40	6¾ cwt.	100	18·3	2500	4334	8
	A	4·7	*12*	50	6 3½	45	10¾	2953	2721	12
	A	4·7	*12*	45	53	45	8	2552	2110	10
LIGHT	A	4	*10·2*	..	..	..	..	..	..	..

* A=Armstrong

14 inch, 45 cal., in *Alm. Latorre.*
8 inch. 45 cal., in *O'Higgins.*
8 inch, 40 cal., in *Blanco Encalada.*

6 inch, 50 cal., in *Alm. Latorre* and *Chacabuco.*
6 inch, 40 cal., in *O'Higgins, B. Encalada.*
4.7 inch in *Serrano* class (6).
4.7 inch in *Chacabuco, G. Baquedano*
4 inch in *Alm. Lynch* class (2).

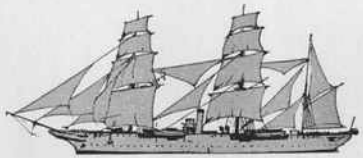
Torpedoes : 21 inch (heater), and 18 inch. **Mines :** Similar to British pattern.

Mercantile Marine.

(From "Lloyd's Register" 1939 figures.)

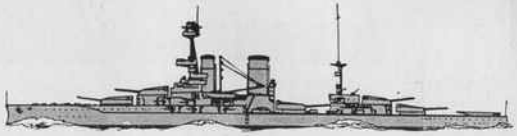
106 vessels of 176,289 gross tonnage.

ELICURA *class.*

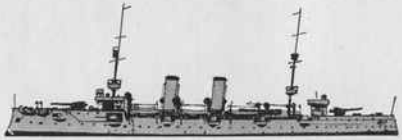


GENERAL BAQUEDANO.
(*Training Ship.*)

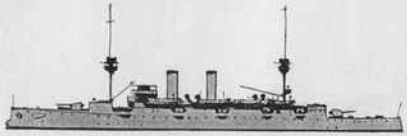
ARAUCANO.



ALMIRANTE LATORRE.



CHACABUCO.

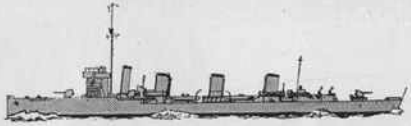


BLANCO ENCALADA.

GENERAL O'HIGGINS.

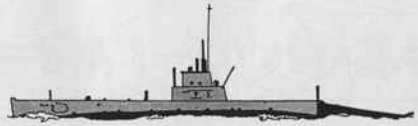
TORPEDO CRAFT.

SERRANO *class.*



ALM. LYNCH. ALM. CONDELL.

O'BRIEN *class.*



GUALCOLDA *class.*

ALMIRANTE LATORRE (ex British *Canada*, ex Chilean *Almirante Latorre*, ex *Valparaiso*, Nov., 1913). Standard displacement, 28,000 tons (over 32,000 *full load*). Complement, 1176.

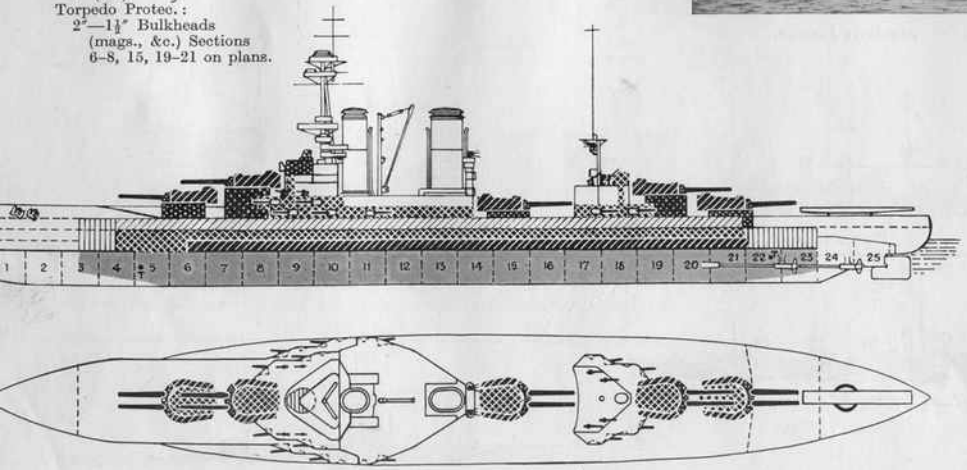
Length (*p.p.*), 625 feet. (*o.a.*), 661 feet. Beam, 103 feet. { *Mean* draught, 28½ feet. / *Max.* „ 30 „ }

Guns (Armstrong):
10—14 inch, 45 cal.
14—6 inch, 50 cal.
4—4 inch AA.
4—3 pdr.
12 M.G.
Torpedo tubes (21 inch):
4 *submerged*.
1 Catapult.

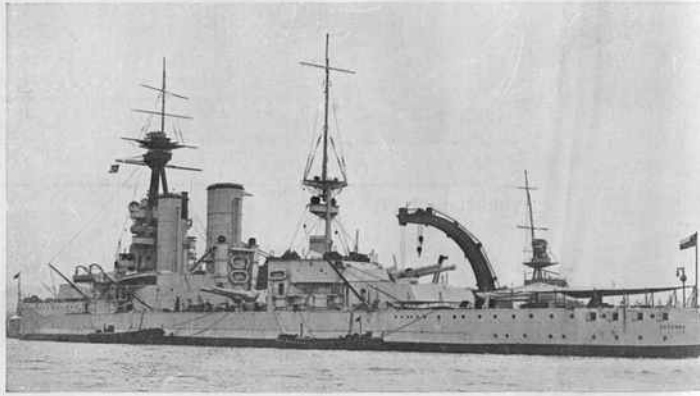
Armour:
Decks.
1″ Shelter (over casemates)
1″ Fo'xle (over battery)
1½″ Upper (outside battery)
1½″ Main (aft)
1″ Protective
2″ (forward) } lower
4″ (aft) }
Torpedo Protec.:
2″—1½″ Bulkheads (mags., &c.) Sections 6–8, 15, 19–21 on plans.

Armour:
Vertical.
10″ Lower belt .....
7″ Middle belt .....
4½″ Upper belt .....
6″-4″ Belt (ends)
4½″, 4″ B'lkh'ds (f. & a.)
6″ Batteries .....
10″ Barbettes .....
10½″-9″ Gunhouses
3″ C.T. base* .....
11″ C.T. (6″—3″ hood) ..
6″ Fore com. tube ....
6″ Torpedo C.T. .....
6″ Aft com. tube .....
(Bulges)

*Not shown on plans.



1933 *Photo, Officia*



1931, *R. Perkins.*

Machinery: Turbine, 4-shaft: (L.P.) Parsons; (H.P.) Parsons. Boilers: 21 Yarrow. Designed H.P. 37,000 = 22·75 kts. Oil: 4,300 tons. Endurance: 4,400 miles at 10 kts.

Gunnery Notes.—14-inch have a range only limited by *max.* visibility. Originally had 16—6 inch, but the 2—6 inch on upper deck, abeam of after funnel, were removed and ports plated over. Reason for removal was because guns were only a few feet from muzzle of "Q" turret 14-inch guns on extreme bearing and were damaged by blast. Anti-aircraft guns are mounted on after superstructure.

Armour Notes.—Barbettes, 6″ and 4″ as they descend behind belts.

Searchlights.—8—24 inch and 2—20 inch (signalling) Harrison lamp type burners.

General Notes.—Laid down for Chile by Armstrong, in Nov. 1911, as the *Valparaiso*, her name being alter afterwards to *Almirante Latorre*. Purchased for British Navy on outbreak of War and re-named *Canad* Completed Sept., 1915. Additional protection, &c., added during War is said to have raised her *norm* displacement to over 30,000 tons. Re-purchased by Chile, April, 1920. Arrived at Devonport in summ of 1929 to be refitted in the dockyard under a special contract with new machinery supplied by Vicker Armstrongs, Ltd. Bulges fitted, and masts and bridgework underwent slight modifications. The ma topmast was raised to 60 feet, and controls fitted at the ends of the upper bridge; searchlights remov from bridge; new turbines and oil fuel only installed. She returned to Chile early in 1931. A catapult mounted on the quarterdeck. Her sister ship, *Almirante Cochrane*, was purchased for British Navy in 191 re-named *Eagle*, and modified for service as an Aircraft Carrier. (See British Navy Section.)

ALMIRANTE LATORRE (ex British *Canada*, ex Chilean *Almirante Latorre*, ex *Valparaiso*, Nov., 1913). Standard displacement, 28,000 tons (over 32,000 *full load*). Complement, 1176.

Length (p.p.), 625 feet. (*o.a.*), 661 feet. Beam, 103 feet. { *Mean* draught, 28½ feet. / *Max.* „ 30 „ }

Guns (Armstrong):
- 10—14 inch, 45 cal.
- 14—6 inch, 50 cal.
- 4—4 inch AA.
- 4—3 pdr.
- 12 M.G.

Torpedo tubes (21 inch):
- 4 *submerged*.

1 Catapult.

Armour:

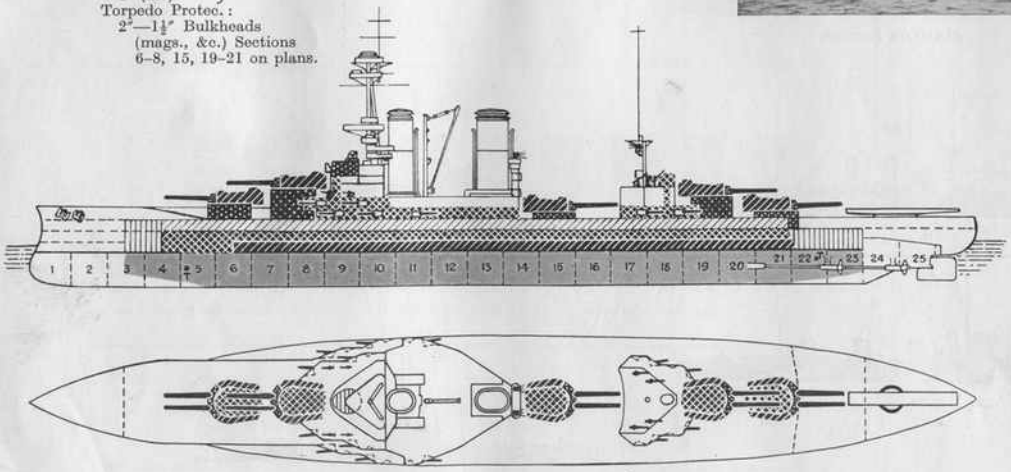
Decks:
- 1″ Shelter (over casemates)
- 1″ Fo'xle (over battery)
- 1½″ Upper (outside battery)
- 1½″ Main (aft)
- 1″ Protective
- 2″ (forward) } lower
- 4″ (aft) }

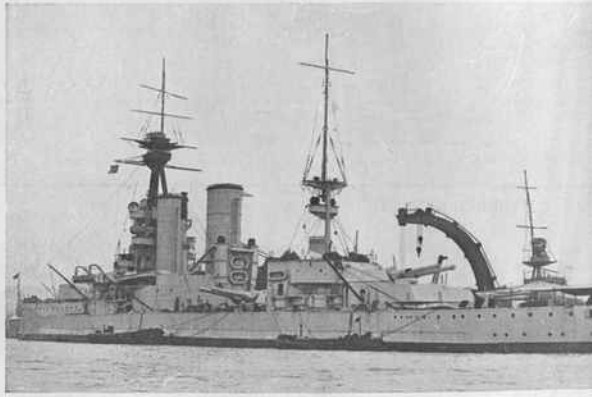
Torpedo Protec.:
- 2″—1½″ Bulkheads (mags., &c.) Sections 6–8, 15, 19–21 on plans.

Armour:

Vertical:
- 10″ Lower belt .....
- 7″ Middle belt .....
- 4½″ Upper belt .....
- 6″-4″ Belt (ends)
- 4½″, 4″ B'lkh'ds (f. & a.)
- 6″ Batteries .....
- 10″ Barbettes .....
- 10½″-9″ Gunhouses
- 3″ C.T. base* .....
- 11″ C.T. (6″—3″ hood) ..
- 6″ Fore com. tube ....
- 6″ Torpedo C.T. .....
- 6″ Aft com. tube .....
- (Bulges)

*Not shown on plans.





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2″ (forward) } lower
4″ (aft) }
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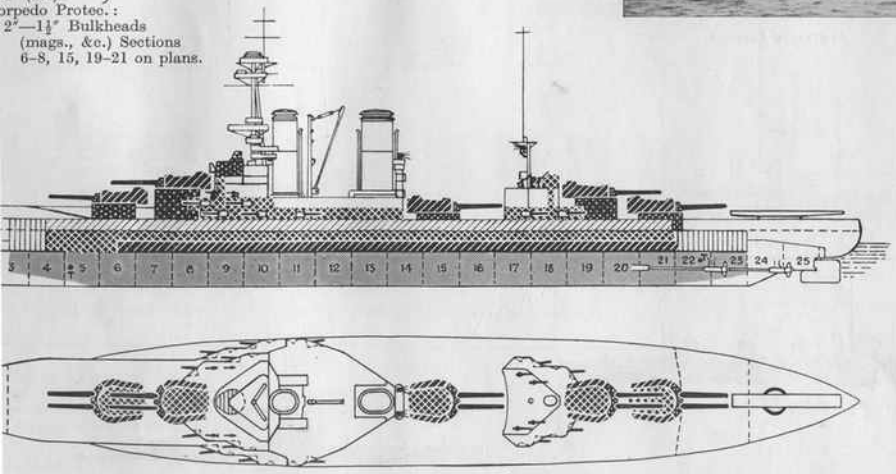
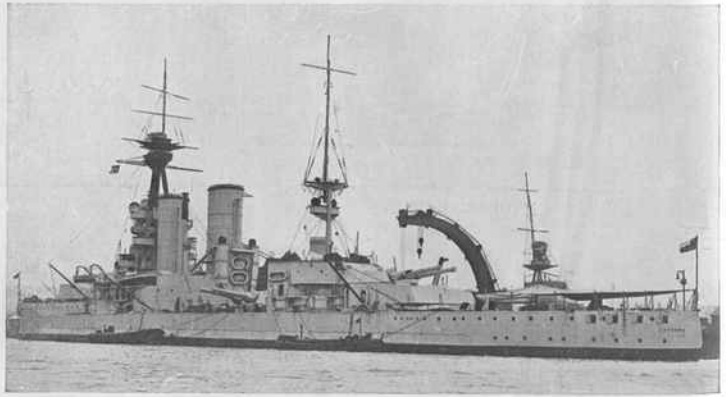
2″—1½″ Bulkheads (mags., &c.) Sections 6–8, 15, 19–21 on plans.

Armour:
10″ Lower belt
7″ Middle belt
4½″ Upper belt
6″-4″ Belt (ends)
4½″, 4″ B'lkh'ds (f. & a.)
6″ Batteries
10″ Barbettes
10½″-9″ Gunhouses
3″ C.T. base*
11″ C.T. (6″—3″ hood)
6″ Fore com. tube
6″ Torpedo C.T.
6″ Aft com. tube
(Bulges)
*Not shown on plans.



1933 *Photo, Official.*



1931, *R. Perkins.*

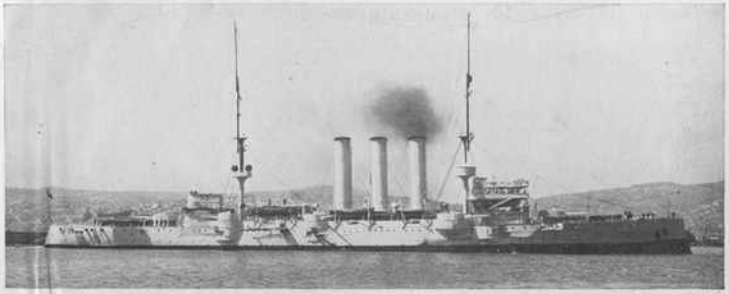
Machinery: Turbine, 4-shaft: (L.P.) Parsons; (H.P.) Parsons. Boilers: 21 Yarrow. Designed H.P. 37,000 = 22·75 kts. Oil: 4,300 tons. Endurance: 4,400 miles at 10 kts.

Gunnery Notes.—14-inch have a range only limited by *max.* visibility. Originally had 16—6 inch, but the 2—6 inch on upper deck, abeam of after funnel, were removed and ports plated over. Reason for removal was because guns were only a few feet from muzzle of "Q" turret 14-inch guns on extreme bearing and were damaged by blast. Anti-aircraft guns are mounted on after superstructure.

Armour Notes.—Barbettes, 6″ and 4″ as they descend behind belts.

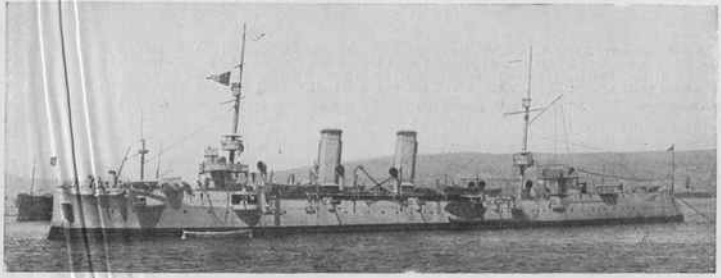
Searchlights.—8—24 inch and 2—20 inch (signalling) Harrison lamp type burners.

General Notes.—Laid down for Chile by Armstrong, in Nov. 1911, as the *Valparaiso*, her name being altered afterwards to *Almirante Latorre*. Purchased for British Navy on outbreak of War and re-named *Canada*. Completed Sept., 1915. Additional protection, &c., added during War is said to have raised her *normal* displacement to over 30,000 tons. Re-purchased by Chile, April, 1920. Arrived at Devonport in summer of 1929 to be refitted in the dockyard under a special contract with new machinery supplied by Vickers-Armstrongs, Ltd. Bulges fitted, and masts and bridgework underwent slight modifications. The main topmast was raised to 60 feet, and controls fitted at the ends of the upper bridge: searchlights removed from bridge; new turbines and oil fuel only installed. She returned to Chile early in 1931. A catapult is mounted on the quarterdeck. Her sister ship, *Almirante Cochrane*, was purchased for British Navy in 1917, re-named *Eagle*, and modified for service as an Aircraft Carrier. (See British Navy Section.)



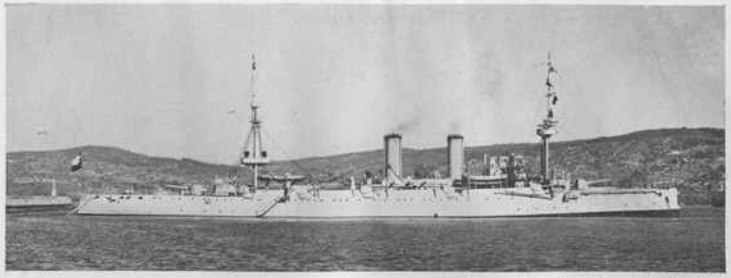
1933 *Photo, Official.*

GENERAL O'HIGGINS (Armstrong, 1897). Standard displacement, 7,796 tons. Complement 700. Length (*p.p.*), 412 feet. Beam, 62¾ feet. *Max.* draught, 22 feet. Guns (Armstrong): **4**—8 inch, 45 cal. **10**—6 inch, 40 cal., **13**—3 inch. (**1** field), **4** M.G. Torpedo tubes (18 inch): **2** *submerged.* Armour (Harvey-nickel): 7″-5″ Belt (amidships), 2″ Deck (slopes), 7½″ Port plates to 8 inch gun turrets, 6″ Hoists to these, 6″ Gun houses to 6 inch guns, 6″ Casemates (6), 9″ Conning tower. Machinery: 2 sets triple expansion. 2 screws. Boilers: 30 Belleville (in 3 groups). Designed H.P.: 16,000 = 21·5 kts. (still steams very well and can do 20 kts.). Coal: *normal* 700 tons; *maximum* 1,200 tons. Endurance: (*a*) 2,250 miles at 20 kts.; (*b*) 6,000 miles at 10 kts. Large re-fit 1928–29.



1919 *Copyright photo, G. Allan, Valparaiso.*

CHACABUCO (Armstrong, 1898). Displacement, 3,437 tons, *std.* Complement 400. Length (*p.p.*), 360 feet. Beam, 46½ feet. *Maximum* draught, 17 feet. Guns (Armstrong): **2**—6 inch, 50 cal. **10**—4·7 inch, 40 cal., **5**—3 inch, **1**—3 pdr. Armour (Harvey-nickel): 4½″ Deck (amidships), 1¾″ Deck (ends), 4½″ Fronts to 6 in. gun shields, 2½″ Sides to 6 in. gun shields, 2½″ Shields to 4·7 in. guns, 5″ Conning tower. Boilers, cylindrical. I.H.P. 15,500=24 kts. Still steams very well. 2 screws. Coal: *normal* 300 tons; *maximum* 1,028 tons. Electric training and elevating gear to 6 inch guns. Laid down at Elswick, 1897, as a speculation. Completed 1902, and purchased by Chile that year.



1937, *Official, courtesy Com. G. H. Trudgett.*

BLANCO ENCALADA (Armstrong, 1893). Standard displacement, 3,435 tons. Complement 427. Length (p.p.), 370 feet. Beam, 46½ feet. *Maximum* draught, 19½ feet. Armament: 2—8 inch, 40 cal., **10**—6 inch, 40 cal., **5**—3 inch, **1**—1 pdr., **2** Maxims. Armour: 4″ Deck, 6″ Shields to 8″ guns, 6″ Conning tower. Boilers: cylindrical (retubed 1908-9). Designed H.P. 14,500= 22·75 kts. (only about 19 kts. now.) Coal: *maximum* 850 tons. Endurance: 5000 miles at 10 kts. Refitted, 1920, at Talcahuano.

Note.—Laid down Sept., 1892, launched a year later, and completed April 1894.

6 Serrano Class.

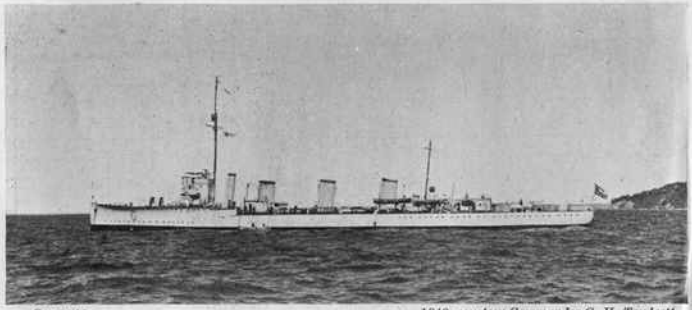
SERRANO. 1937, *Official, courtesy Com. G. H. Trudgett.*

(Plan by courtesy of Messrs. John I. Thornycroft & Co. Ltd.)

6 *Thornycroft* type. ***Serrano*** (Jan. 25th, 1928), ***Orella*** (March 8th, 1928), ***Riquelme*** (May 28th, 1928), ***Hyatt*** (July 21st, 1928), ***Aldea*** (Nov. 29th, 1928), ***Videla*** (Oct. 16th, 1928). All laid down June-July, 1927. "Standard" displacement, 1090 tons: *full load*, 1430 tons. Dimensions: 288¼ (*p.p.*), 300 (*o.a.*) × 29 × 12¾ feet (*maximum* draught). Guns: **3**—4.7 inch, **1**—3 inch AA., **3** M.G. 2 D.C. Throwers. Tubes: **6**—21 inch, in triple deck mountings. Machinery: Geared turbines (Brown-Curtis h.p. and cruising, Parsons l.p.). Boilers: 3 Thornycroft, 3-drum type. S.H.P. 28,000 = 35 kts. Oil fuel: 320 tons. 2 screws. Provision made for carrying mines. Complement, 130.

Notes.—These destroyers are named after naval officers who distinguished themselves at the battle of Iquique in 1879. Plating is galvanised throughout, and the heavy hull scantlings reduce the stresses to even less than those allowed by British Admiralty practice. All exceeded their contract speed on trials. They have exceptionally good accommodation for vessels of their size, and are adapted for service in a wide range of climates. The contract, amounting to about £1,750,000, was awarded to Messrs. Thornycroft after intensive competition with many other yards, British and foreign.

2 Almirante Class.



CONDELL. 1940, *courtesy Commander G. H. Trudgett.*

2 *White* : ***Almirante Lynch*** (1912), ***Al. Condell*** (1913). *Standard* displacement: 1,373 tons. *Full load*: 1,850 tons. Dimensions: 320×32½×11 feet. Armament: **6**—4 inch, **4**—13 mm. AA., **4**—21 inch tubes. Designed H.P.: 30,000 = 31 kts. Turbines: Parsons. Boilers: 6 White-Forster. 3 shafts. Fuel: 427 tons coal + 80 tons oil = 2,750 miles at 15 kts. Trials: *Al. Lynch*, 31·8 kts. (6 hours); *Al. Condell*, 33·4 kts. Complement: 160.

Note to Illustration.—First letter of name painted on bow for identification purposes, *e.g.*, *L* = *Lynch*, *C* = *Condell*.

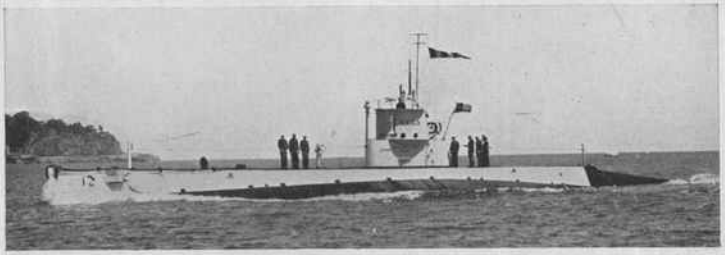
(Partially rearmed 1936.)

Submarines.

2 Submarines of 750 tons displacement, armed with 6 torpedo tubes and a 4-inch gun, are projected.

1930 *Photo, Courtesy of Messrs. Vickers-Armstrongs.*

3 *Vickers-Armstrongs:* ***Capitan O'Brien*** (October 2nd, 1928), ***Capitan Thompson***, ***Almirante Simpson***, (Jan. 15th, 1929). Displacement $\frac{2000}{1300}$ tons. Dimensions: 260 × 28 × 13¼ feet draught. H.P. $\frac{3000}{1300} = \frac{15}{9}$ kts. Fuel: 200 tons. Guns: 1—4·7 inch. Tubes: 8—21 inch (6 bow, 2 stern). Of same general design as British "O" type. All 3 laid down at Barrow-in-Furness, Nov. 15, 1927: completed June 19, 1929 (*O'Brien*); Aug. 24, 1929 (*Thompson*); and Sept. 14, 1929 (*Simpson*).

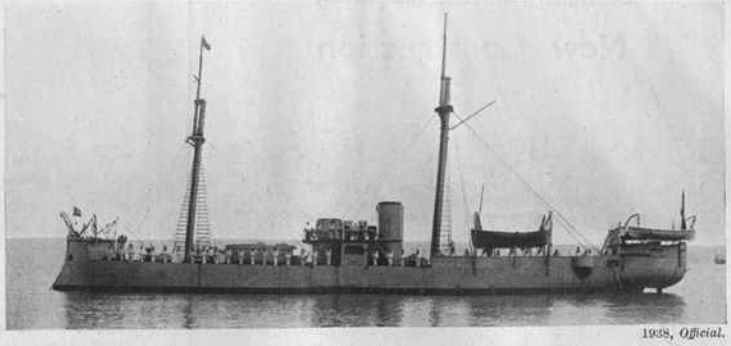


GUALCOLDA. 1933 *Photo, Official.*

6 *Holland Type* (Electric Boat Co. design): ***Gualcolda*** (H 1.) ***Tegualda*** (H 2.) ***Rucumilla*** (H 3.) ***Guale*** (H 4.), ***Quidora*** (H 5.) ***Fresia*** (H 6.) (Fore River Co., U.S.A., 1915-17). Displacements: $\frac{237}{273}$ tons. Dimensions: 150¼ × 15¼ × 12½ feet. H.P. $\frac{480}{630} = \frac{12.75}{16.25}$ kts. Machinery: *for surface* 2 sets 240 H.P. Nelseco Diesel engines. Endurance: 2800 miles at 11 kts. *on surface*; at 30 miles 5 kts. *submerged.* Oil: 17½ tons. Torpedo tubes 4—18 inch (bow). Complement 22.

Notes.—These boats were originally *H 13* and *H 16—20* of the British *H 11—20* group of submarines, built by the Fore River Co., U.S.A., during 1915. The Admiralty intended to take them over and equip them with torpedo tubes at the Canadian Vickers Co. Yard at Montreal—provided that these boats could legally be delivered in an unarmed state. The U.S. Government decided the submarines could not leave any U.S. port, so long as the United States remained neutral, and all the boats were interned at Boston. They were released on the U.S. declaration of war, 1917. With the approval of the U.S. authorities, the above six boats were ceded to Chile by Great Britain, in part payment for the Chilean warships building in British yards in August, 1914, and appropriated for the British Navy. Names are those of Araucanian chiefs.

Coast Defence Ship.

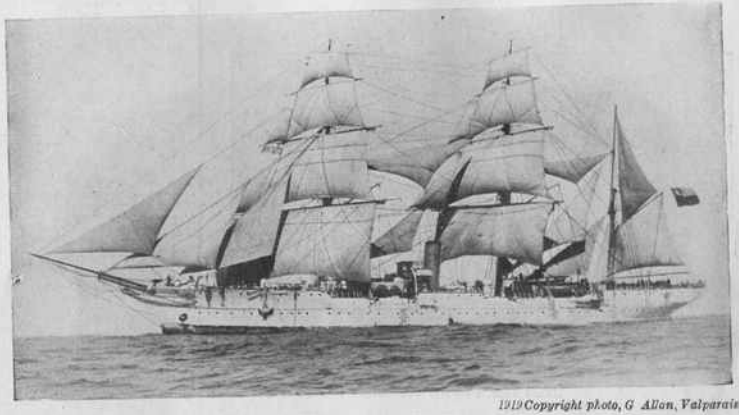


1938, *Official.*

HUASCAR (Laird, Birkenhead, 1865). Displacement: 1,870 tons. Complement: 135. Dimensions: 190 × 30½ × 16 feet. Guns: 2—8 inch, 3—4·7 inch, 4—47 mm.

Note.—As will be seen from above photograph, this ship (which was captured from Peru in 1879) has been reconditioned. She wears the flag of the Port Admiral at Talcahuano.

Training Ship (rated as *Corbeta*).

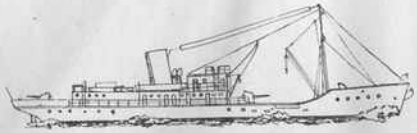


1919 Copyright photo, G Allen, Valparaiso.

GENERAL BAQUEDANO (1898). 2500 tons, sheathed and coppered. Armed with 4—4·7 inch, 40 cal., 4—6 pdr. I.H.P. 1500 = 13·75 kts. Belleville boilers (renewed 1924). Coal: 300 tons. Built by Armstrong, Whitworth & Co. Ltd. (Refitted 1923-24, but not seagoing at present.)

Coastguard Vessels. (*Escampavias*)

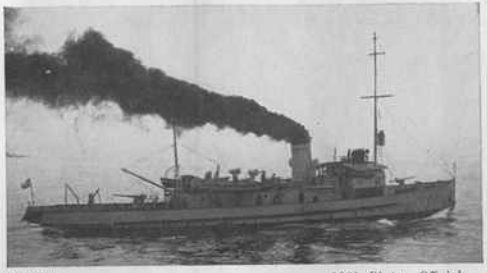
New Construction



1 vessel laid down at Valdivia, 1939. Displacement: 1,026 tons. Dimensions: 180 × 30 × 12 feet. Machinery: Reciprocating. I.H.P.: 900 = 12 kts. 1 boiler, 220 lbs. working pressure. Coal capacity: 125 tons.

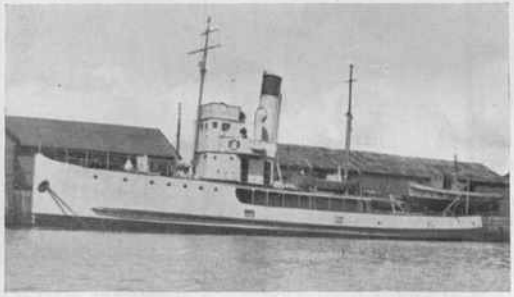
Added 1938, *Courtesy Commander G. H. Trudgett*

MICALVI (ex-*Bostonlines*, ex-*Bragi*) (Ostsee Werft, Stettin, 1925). Displacement 850 tons. (612 tons *gross*). Dimensions: 181½ × 28¾ × 11 feet. Triple expansion engines. I.H.P. 380 = 9·5 kts.



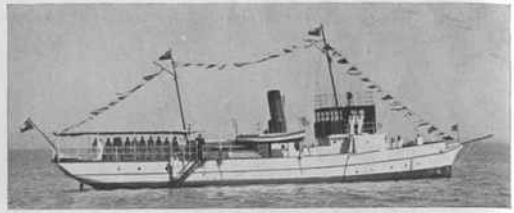
ELICURA. 1931 *Photo, Official.*

ELICURA, (ex-*Kulik*), **LEUCOTON,** (ex-*Norge*), **OROMPELLO,** (ex-*Bekas*). All built by Maskin och Brobyggnads Co., Helsinki, and completed 1919. Displacement: 530 tons. Length (*o.a.*), 172·6 feet. Beam, 24·6 feet. *Maximum* draught, 11 feet. Guns: 2—3 inch. I.H.P. 1400 = 14½ kts. speed. 2 sets triple expansion engines. 2 screws. Boilers: 3 cylindrical. Coal capacity: *Leucoton* 56 tons; *Elicura* and *Orompello*, 65 tons. Complement, 42. Refitted by Messrs. J. Samuel White & Co., Cowes, 1920.



YELCHO 1938, *Official.*

YELCHO (1906). Displacement: 467 tons. Dimensions: 128 × 23 × 9½ feet. Speed: 12 kts.

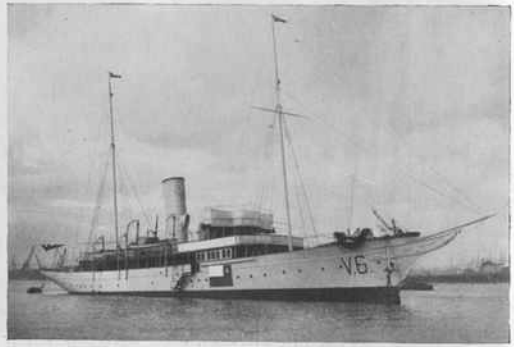


Added 1939, *Official.*

CONDOR. Iron and wood. Built in Marseilles, 1889. Large refit 1927. Displacement: 145 tons. Dimensions: 102 × 18¾ × 9 feet. Speed: 9 kts. Coal: 20 tons. Employed as Lighthouse Tender.

(Most of the above vessels are employed on Surveying Service.)

Surveying Vessel.



1940, *courtesy Messrs. Thornycroft.*

VIDAL GORMAZ (ex-*Cynara*, ex-*Jason*). (Day, Summers & Co. Southampton, 1913). Purchased 1940, and adapted for present duties by John I. Thornycroft & Co. Ltd., Southampton. Standard displacement: 670 tons. Dimensions: 178 (*w.l.*), 190 (*o.a.*) × 28½ × 14 feet. Machinery: Quadruple expansion. I.H.P. 1,200 = 13 kts. Boilers: 2 cylindrical. Coal: 165 tons.

Submarine Depot Ship.

1933 *Photo, Official.*

ARAUCANO (Vickers-Armstrongs, Barrow, Oct. 22, 1929). Displacement: 9,000 tons. Dimensions: 390 × 55 × 16½ feet draught. Guns: 2—4·7 inch, 2—3 inch AA. S.H.P.: 2,400 = 13 kts. Machinery: Parsons geared turbines. 1 screw. Coal: 670 tons. Has accommodation for 585, including crews of attached submarines. Laid down, March 1, 1929, and completed March, 1930. Has since had a seaplane added to her equipment.

Oilers.

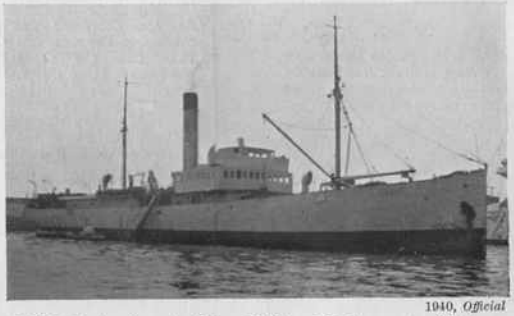
RANCAGUA 1930 *Photo.*

MAIPO (Jan., 1930), **RANCAGUA** (Nov., 1929). Both built by Vickers-Armstrongs, Ltd., on the Tyne. Displacement: 7,715 tons (3,800 tons *gross*). Complement: 54. Dimensions: 365 × 49¾ × 22½ feet draught. Guns: 2—4·7 inch, 2 M.G. AA. I.H.P.: 4,800 = 15 kts. Machinery: Triple expansion. 2 screws. 4 S.E. boilers. Oil fuel: 725 tons. Laid down in March, 1929. Completed in March, 1930. Are distinguished by initials of names painted on bows.

Transports. (*Trasportes*)

Building.

ANGAMOS (Aalborg Vaerft). Displacement: 3,800 tons. Dimensions: 315 (*pp.*), 340 (*o.a.*) × 46 × 19¾ feet. Machinery: Triple expansion. I.H.P. 2,200 = 12 kts. Coal: 575 tons. Complement: 72 + 74 passengers or troops. (Laid down April 5th, 1940.)



1940, *Official*

ABTAO (ex-*Sosua*) (Oslo, 1912). Displacement: 691 tons *standard*. Dimensions: 225 × 33½ × 18 feet. Machinery: Triple expansion. I.H.P. 1185 = 10 kts. 2 cylindrical boilers.

Seagoing Tugs (*Remolcadores*).

2 new tugs of 500 tons are to be built.

PELANTARO 1940, *Official*

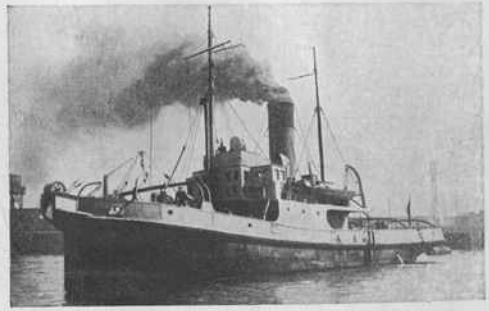
CONTRAMAESTRE BRITO (1937), **PELANTARO** (ex-*Huemul*, ex-*Vilumilla*) (1937). Both built at Valdivia. Displacement: 320 tons. Dimensions: 100 (*w.l.*) × 22 × 13 feet. Machinery: Reciprocating. I.H.P.: 650 = 12 kts. 1 boiler. Coal capacity: 35 tons.

Seagoing Tugs—*continued.*

1931 *Photo, Official.*

PILOTO SIBBALD (1916), built by Bow, McLachlan & Co., Paisley. Displacement: 1,100 tons. Dimensions: 141¾ × 28¾ × 11 feet. Machinery: Triple expansion. 2 screws. 2 cylindrical boilers. I.H.P.: 1,200 = 11½ kts. Coal capacity: 145 tons. Complement, 18. Possesses fire fighting and salvage equipment.

Note.—During 1916–19 this vessel was taken over by the British Navy, in which she served as the *Stoic*. Re-acquired by Chile in 1920.

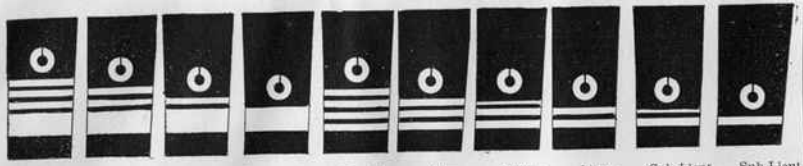


SOBENES. 1931 *Photo, Official.*

SOBENES, CABRALES (1929), **COLOCOLO, GALVARINO** and **JANEQUEO** (1930) built by Bow McLachlan. Displacement: 790 tons. Dimensions: 126½ × 27 × 12 feet (*mean*). I.H.P. 1050 = 11 kts. Coal capacity: 130 tons.

CHINA.

Uniforms.

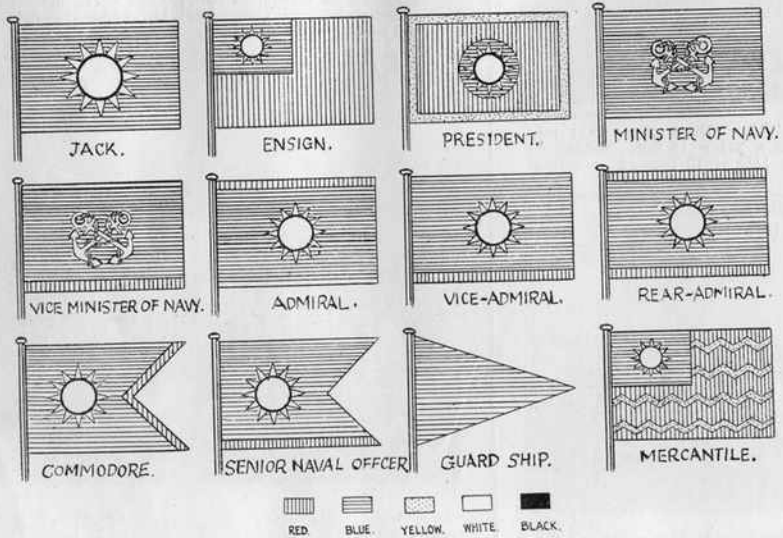


Admiral. | Vice-Admiral. | Rear-Admiral. | Commodore. | Captain. | Commander. | Lieut.-Comm'r. | Lieut. | Sub-Lieut. 1st Class. | Sub-Lieut 2nd Class.

Colour between stripes :—*Engineers* (none) ; *Surgeons*, red ; *Paymasters*, white ; *Ship Constructor*, purple ; *Navigating Officers*, light indigo blue ; *Ordnance*, Pink; *Wireless*, Mauve ; *Bandmasters*, Green ; *Judge Advocates*, Grey. All these branches *without* the curl or emblem over top stripe. *Aviation*, no colour between stripes, but Gold Eagle replaces emblem above stripe.

Minister of the Navy:—Admiral S. K. Chen. *Vice-Ministers of the Navy*:—Vice-Admiral C. L. Chen, Vice-Admiral H. Y. Chen. *Naval Attaché, London* :—Capt. Y. H. Lung.

Flags.



Mercantile Marine.

(From "Lloyd's Register" 1939 figures.) 173 Vessels of 258,432 *Gross* Tonnage.

SPECIAL NOTE

Pending the termination of hostilities between China and Japan, it has proved impossible to obtain a reliable list of the ships of the Chinese Navy that remain in service. But it is believed that the following have been destroyed or otherwise lost :

Cruisers : Ning Hai, Ping Hai, Hai Chi, Hai Chou, Hai Shen, Hai Yung, Chao Ho, Ying Swei, Tung Chi.
Sloops : Yat Sen, Hai Chao.
Gunboats : Hsien Ning, Yung Chien, Yung Hsiang, Yung Chi, Chu Tai, Chu Yiu, Chu Yu, Kiang Li, Ta Tung, Tze Chion.
Torpedo Boats : Chien Kang, Tung An, Hu Ying, and about 6 of motor type.
Patrol Boats : Kiang Ning, Wei Ning, Suh Ning, Wu Ning, Chang Ning, Cheng Ning, Chung Ning.
Seaplane Carriers : Teh Sheng, Wei Sheng.
Surveying Vessels : Chiao Jih, Chin Tien.

In addition, the following are reported to have been more or less seriously damaged :
Gunboats : Ming Chun, Ming Sen, Kiang Chen, Chu Kuan.
Torpedo Boats : Hu Chun, Hu Peng.
Patrol Boats : Yi Sheng, Sui Ning.

It is quite likely that there have been other losses, unrecorded. In the absence of full and authentic details, it has been decided to omit photographs and particulars of the few possibly surviving vessels from this issue of " Fighting Ships," with the exception of the following :

Motor Torpedo Boats.

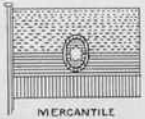
Added 1938, *courtesy Messrs. Thornycroft.*

A number of M.T.B. of the Thornycroft type are still in existence. Dimensions : 55 × 11 feet. Complement, 5. Armament : 2 M.G., 2—18 inch Torpedoes. B.H.P. 1,000 = 45 kts.

A depôt ship for M.T.B., displacing 1,500 tons, and 1 or 2 patrol vessels were under construction at Hong Kong.

COLOMBIA.

NAVAL


MERCANTILE

Red
White
Blue
Yellow

Destroyers. (*Fitted for Minelaying*)

ANTIOQUIA. 1933 *Photo, Sen. Henrique Seixas.*

2 *Yarrow type:* **ANTIOQUIA** (ex-*Douro*, June 9, 1932), **CALDAS** (ex-*Tejo*, Nov. 18, 1933). Both built at Lisbon for Portugal, and purchased in 1934. Displacement: 1,239 tons *standard*, 1,620 tons *full load*. Complement: 147. Dimensions: 319 (*pp.*), 322 (*o.a.*) × 31 × 11 feet *max.* draught. Guns: 4—4·7 inch, 3—40 mm. AA. 2 Depth Charge throwers. Tubes: 8—21 inch, in quadruple mounts. Machinery: Parsons geared turbines. H.P.: 33,000 = 36 kts. Boilers: 3 Yarrow, working pressure 400 lbs. Oil fuel: 296 tons. Radius of action: 5,400 miles at 15 kts.

Gunboats.

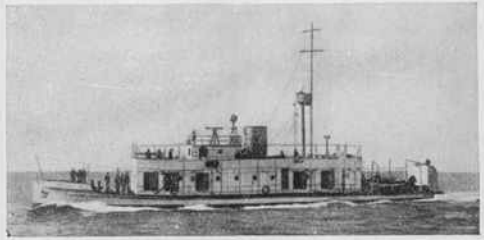
1938, *W. H. Davis, Esq.*

MARISCAL SUCRE (ex-yacht *Flying Fox*, ex-*Winchester*). (Yarrow, 1909). *Standard* displacement: 125 tons. Dimensions: 160 (*pp.*), 165 (*o.a.*) × 15½ × 4 feet. Guns: 2—3 inch, 1 M.G. Machinery: Parsons turbines. 3 shafts. S.H.P.: 2,500 = 25 kts. Boilers: 2 Yarrow, 250 lb. w.p. Oil fuel: 17 tons.

Gunboats—*continued.*

BOGOTA (ex-*Partenope*, ex-*Hornum*, ex-German minesweeper *M* 140). **CORDOBA** (ex-*Dinard*, ex-*Grille*, ex-*M* 158). Built by Joh. C. Tecklengorb A.G., and Nordseewerke A.G., respectively, 1919, and purchased in 1933. Displacement: 525 tons. Dimensions: 184 (*w.l.*), 192 (*o.a.*) × 24½ × 7½ feet. Guns: 1—3·5 inch, 2—3 inch, 2 M.G. Machinery: 2 sets triple expansion. H.P.: 1,850 = 16 kts. Boilers: 2 Schulz. 2 screws. Coal: 160 tons.

River Gunboats.



CARTAGENA 1930, *courtesy Builders.*

CARTAGENA (March 26, 1930), **SANTA MARTA** (April 16, 1930), **BARRANQUILLA** (May 10, 1930). All built by Yarrow & Co., Ltd. Displacement: 142 tons. Complement: 12. Dimensions: 130 (*p.p.*), 137¾ (*o.a.*) × 23½ × 2¾ feet *maximum* draught. Guns: 1—3 inch, 4 M.G. Machinery: 2 Gardner semi-Diesel engines. H.P.: 600 = 15·5 kts. 2 screws, working in tunnels. Fuel: 24 tons.

Notes.—These three vessels crossed the Atlantic under their own power without mishap, making the voyage from the Clyde to the Magdalena in 24 days with only one stop (St. Vincent). They represent an extraordinarily efficient type of shallow draft gunboat, incorporating many improvements on previous types. The designed speed has been exceeded on trial and is very high for this type of craft. Hull is of galvanised steel, and machinery spaces, cabins and magazines are of bullet proof plating. Ventilation and refrigerating plant designed to secure excellent habitability.

PRESIDENTE MOSQUERA. Sternwheel Gunboat. Displacement: 200 tons. Dimensions: 150 × 35 × 3½ feet. Guns: 2—37 mm.

A, B, C, D. (ex-*L.M.* 15, 17, 19, 20). (1918.) Bought in Germany, 1933. Displacement: 12 tons. Complement, 8. Dimensions: 57½ × 8½ × 2½ feet. 2 M.G. Machinery: Mercedes-Benz motors. B.H.P. 900 = 28 kts.

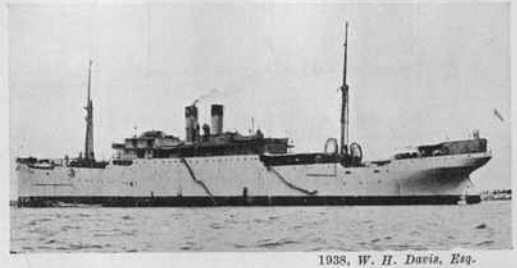
Nos. 1, 2, 3, 4 (Yarrow, 1913). 20 tons. Dimensions: 80 × 12½ × 3½ feet. Guns: 1—1 pdr. H.P.: 160 = 12 kts. Fuel: 1800 galls. petrol = 2400 miles at 10 kts.

Coastguard Patrol Vessels.

JUNIN. 1938, *W. H. Davis, Esq.*

JUNIN (ex-*Boyaca*) (July 8, 1925), **CARABOBO** (August 8, 1925), **PICHINCHA** (Sept. 5, 1925). All built by Soc. Anon. des Chantiers et Ateliers de St. Nazaire (Penhoët), at Rouen. 120 tons. Dimensions: 100 × 20 × 8½ feet. Guns: 1—3 inch, 2 M.G. Triple expansion engines and oil-burning water-tube boilers by Messrs. Thornycroft. Speed: 13 kts.

Training Ship.



1938, *W. H. Davis, Esq.*

CUCUTA (ex-*Commercial Traveller*, ex-*Crofton Hall*). (Hamilton, Glasgow, 1913). Displacement: 12,000 tons; 5,378 tons *gross*. Dimensions: 405 × 52 × 26½ feet. Machinery: Triple expansion. I.H.P. 3,000 = 10 kts. 4 boilers. Oil fuel.

Transports.

BOYACA (ex-*Bridgetown*, ex-*Lake Fillmore*). (Toledo Shipbuilding Co., 1920). Displacement: 5,000 tons, 2,559 tons *gross*. Triple expansion engines and oil-fired boilers.

MOSQUERA (ex-*Royal Highlander*, ex-*Royal Scot*). (Caledon Shipbuilding Co., Ltd., Dundee, 1910). Purchased 1933. Displacement: 3,500 tons, 1,726 tons *gross*. Guns: 2—3·5 inch. Triple expansion engines.

CUBA.

A Government dockyard is projected in Havana Bay, near the Tiscornia. To have a 4,000 ton Floating Dock. Naval Academy at Mariel to be transferred to vicinity of Dockyard.

Private Docks: At Havana, private floating dock (U.S. and Cuban Allied Works Engineering Corp.) 360 × 66 × 17¾ feet (5,600 tons); also Havana Marine Co. has a slipway 3,000 tons capacity.

Chief of Naval Staff: Captain G. del Real.

Personnel: Officers, Line 65; Engineers 49, Paymasters 8, Surgeons 8, Judge-Advocates 2 = 132. Men 1050.

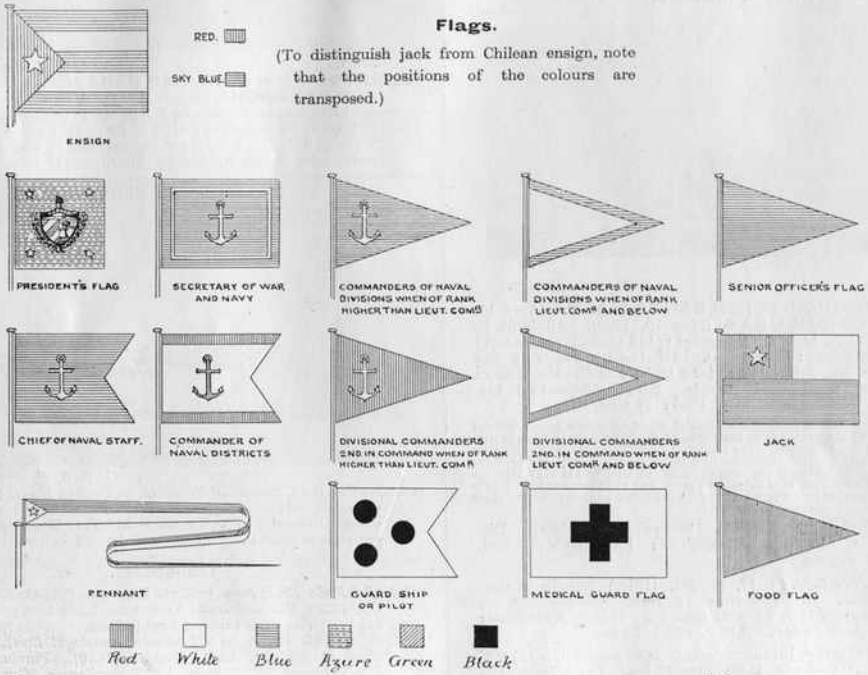
Mercantile Marine.

"Lloyd's Register," 1939 Figures.

39 vessels of 29,947 gross tonnage.

Flags.

(To distinguish jack from Chilean ensign, note that the positions of the colours are transposed.)



Uniforms

Insignia of Rank on Sleeves—Executives.

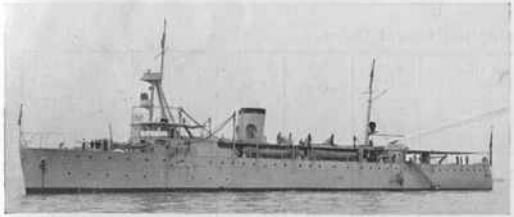
Capitan de Navio
Capitán de Fragata.
Capitán de Corbeta.
Teniente de Navío.
Alférez de Navío.
Alférez de Fragata.
Insignia of Rank on Sleeves — Other Ranks.
Aspirante.
Sub-Official.
(Radio operator)
Blue shoulder knots having stripes in same arrangement worn on white uniform and overcoat.

New Construction Programme, 1940.

It is proposed to acquire one 4,000-ton cruiser, four 2,000-ton sloops, four 1,000-ton sloops, six gunboats of under 1,000 tons, and ten motor launches.

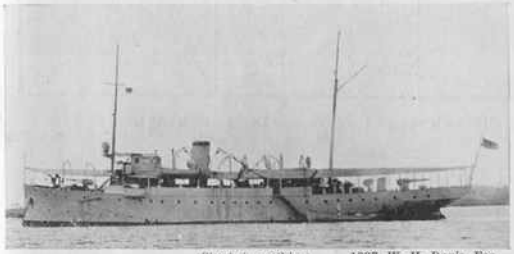
Escort Vessels (rated as Cruisers).

(Both reconstructed, 1936–7)



1937, *R. Perkins.*

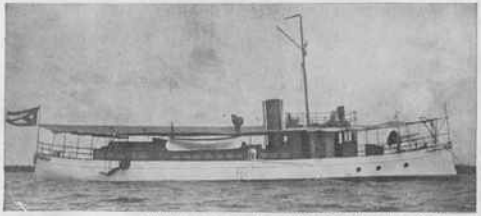
CUBA (Cramp, Philadelphia, 10th August, 1911). 2055 tons. Dimensions: (*p.p.*) 260×39×14 feet. Armament: **2**—4 inch, **6**—3 inch, **4**—6 pdr., **4**—3 pdr., **2** machine. H.P.: 6000=18 kts. Babcock boilers. Coal: 250 tons.



(*Training Ship.*) 1937, *W. H. Davis, Esq.*

PATRIA (Cramp, Philadelphia, 10th August, 1911). 1200 tons. Dimensions: 200 (*p.p.*) × 36 × 13 feet. Guns: **2**—3 inch (Bethlehem), **4**—6 pdr., **4**—3 pdr., I.H.P.: 4000=16 kts. Babcock boilers. Coal: 150 tons.

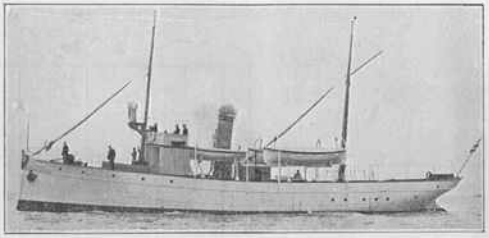
Gunboats.



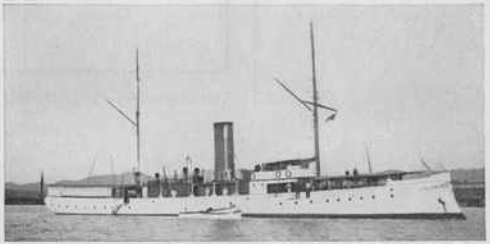
1921 *Photo. by courtesy of Captain J. Morales Coello.*

HABANA (1912) and **PINAR DEL RIO** (1912). Both wooden vessels of 80 tons, built at Havana. Dimensions: 100 × 18 × 6 feet. Guns: **1**—1 pdr. I.H.P.: 200= 12 kts. 1 screw. Coal: 20 tons.

Gunboats—*continued.*



DIEZ DE OCTUBRE (J. Samuel White, Cowes, 1911), **VEINTE Y CUATRO DE FEBRERO** (J. Samuel White, Cowes, 1911). 218 tons. Dimensions: 110 × 20 × 8 feet. Guns: **3**—3 pdr. Speed: 12 kts. Coal: 50 tons.



1921 *Photo, by courtesy of Captain J. Morales Coello.*

BAIRE (Klawitter Yd., Danzig, 1906). 500 tons. Dimensions: 196 × 23 × 9 feet. Guns: **4**—3 inch, **2**—3 pdr. H.P.: 1200 = 14 kts. Babcock boilers. Coal: 120 tons. (Used as Presidential Yacht.)

Coast Guard Patrol Vessels.

CAPITAN QUEVEDO (Havana, 1932). 115 tons. Guns: **1**—3 inch AA., **2**—1 pdr. Diesel engines. Speed: 12 kts.

GENERAL ZAGAS. 500 tons. Guns: **2**—1 pdr.

MATANZAS (1912), **VILLAS** (1912). Details as *Habana* and *Pinar del Rio*; differ in appearance.

ENRIQUE VILLUENDAS (Chester, U.S.A., 1899). 178 tons. 132×20×9 feet. Guns: **2**—3 pdr. I.H.P.: 600=16 kts. Coal: 55 tons.

Coast Guard Patrol Vessels—*continued.*

1937, *W. H. Davis, Esq.*

YARA (Middlesbrough, 1895). 449 tons. 155×26×13 feet. Guns: **2**—6 pdr., **2**—3 pdr. I.H.P.: 600=12 kts. Coal: 150 tons.

VEINTE DE MAYO (Glasgow, 1895). 203 tons. 141×18·5×10·5 feet. Guns: **2**—3 pdr., **2**—1 pdr. I.H.P.: 500=12 kts. Coal: 50 tons.

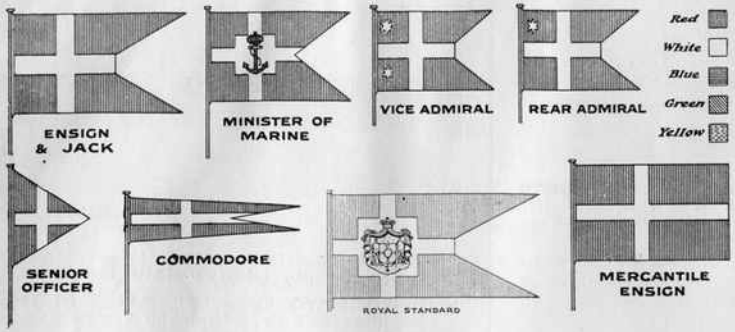
Transport.

COLUMBIA. *Added* 1939, *Theo. N. Silberstein.*

(*Particulars wanted.*)

DENMARK.

Flags.



Note.—Division flag is pennant, otherwise as commodore.

Principal Naval Guns.

Bore: ins.	Bore: cm.	Length in Calibres.	Make and Date of Model.	Weight of Gun. metric tons.	Weight of Projectile. lbs.	Muzzle Velocity. ft.-secs.	Mounted in:
9·4	*24*	43	Bofors M. '06	24·5	352	2690	*P. Skram*
5·9	*15*	45	Bofors M. '20	6·1	101	2740	*Niels Iuel*
5·9	*15*	50	Bofors M. '06	7·5	112	2723	*P. Skram*
4·7	*12*	40	Danish	2·4	44	2526	*Ingolf*
3·4	*8·7*	50	Danish M. '32				*Glenten class*
3·5	*8·8*	40	Bofors M. '28				*Hvidbjörnen*

Torpedoes:—45 cm. heater type in all vessels except 1939 Torpedo Boats which will have 53·3 cm.

Insignia of Rank on Sleeves.

	Admiral.	Vice-Admiral.	Kontre-Admiral.	Kommandör.	Kommandörkaptajn.	Orlogskaptajn.	Orlogskaptajn.	Kaptajnlöjtnant.	Sölöjtnant. 1° Grad.	Sölöjtnant 2° Grad.	Kadet Ældste Klasse
British or U.S.A.	*Admiral.*	*Vice-Admiral*	*Rear-Admiral.*	*Commodore.*	*Captain.*	*Commander. (being replaced by fresh insignia as on right).*	*Commander*	*Lieutenant-Commander.*	*Lieutenant.*	*Sub-Lieutenant.*	*Midshipman.*

Note to pages following this.

All displacements are "Standard". Where measurement of length is not stated, it can be taken as between perpendiculars (*pp.*). All draughts *max. load aft.* unless otherwise stated.

Danish warships are referred to officially with the prefix H.D.M.S.

Personnel: About 4000, all ranks.
Oversea Possessions: Greenland, Faröe Islands.
Minister of Defence: Alsing Andersen.
C. in C. and Director-General, Ministry of Marine: Vice-Admiral H. Rechnitzer.

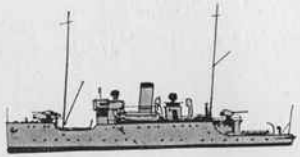
Navy Estimates, 1938-39. Kr. 15,500,000.

Mercantile Marine.

From "Lloyd's Register" 1939.

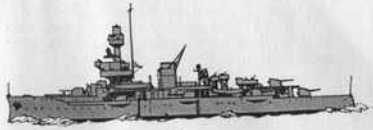
709 Vessels of 1,176,173 tons gross.

SÖBJÖRNEN *class.*



HENRIK GERNER

HEJMDAL. (Topmasts now taller.)



NIELS IUEL.

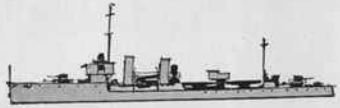
ISLANDS FALK.

HVIDBJÖRNEN. INGOLF.
(Differ slightly, latter having different bridge and a small poop, with seaplane.)

FREJA.

PEDER SKRAM.

LOSSEN.



DRAGEN *class* T.b.
Also GLENTEN *class*,
with larger superstructure aft.

BESKYTTEREN.

"H" *class.*

"P" *class* T.b.

"R" & "S" *classes* T.b.

"B" *class.*

"D" *class.*

"C" *class.*

DENMARK—**Coast Defence Ship**

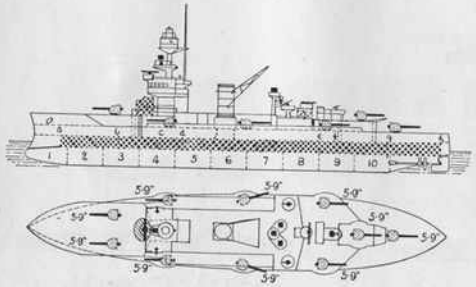
New Construction

It was proposed to build 2 Coast Defence Ships of about 7,000 tons displacement, well protected, armed with **4**—10 inch, **8**—4 inch AA. and sundry smaller guns, and with a speed of 18 kts., but no effective steps have been taken for their construction.

Guns (Bofors):
10—5·9 inch, 45 cal.
2—**6** pdr.
10—20 mm. AA.
14—8 mm. M.G.
Torpedo tubes (17·7 inch heater):
2 *submerged* (broadside).

Armour (Krupp):
$7\frac{3}{4}$″, $7\frac{1}{2}$″, 7″ Side (amidships b - g)
6″ Side (forward & aft. a - b and g - h)
$6\frac{1}{2}$″ Bulkheads (forward and aft.)
3″ Uptake to funnel ..
$6\frac{3}{4}$″ Conning Tower .....
4″ Tubes to C.T. .....
$1\frac{3}{4}$″ Gun shields ($\frac{1}{2}$″ at sides) .....
$2\frac{1}{4}$″ Deck.....
$2\frac{1}{2}$″ Deck (forward) .....

Machinery: Triple expansion. 2 screws. Boilers: 4 Yarrow (2 coal and 2 oil fired). I.H.P. 6,000 = 16 kts. Fuel: 250 tons coal + 240 tons oil. Endurance: about 5000 miles at 10 kts. Laid down Feb., 1914; first commissioned 23rd May, 1923.



Note.—Modernised, 1935-36, and fitted with up-to-date fire control arrangement at a cost of about £150,000. To be used in future as seagoing training ship for midshipmen.

(Officially classed as *Artilleriskib.*)

NIELS IUEL (July, 1918).
Built at Royal Dockyard, Copenhagen.
Displacement, 3,800 tons. Complement, 365.
Length { (*p.p.*), 285½ feet. (*o.a.*), 295¼ feet. Beam, 53½ feet. Draught { *mean* 15¾ feet. *full load*, aft., 17 feet.

1937, *R. Perkins*

1936 *Official*

1936 *Official*

PEDER SKRAM (No longer has funnel bands) 1935, *Com. Steen Steensen, R.D.N.*

PEDER SKRAM (1908).

(Built at Royal Dockyard, Copenhagen.)

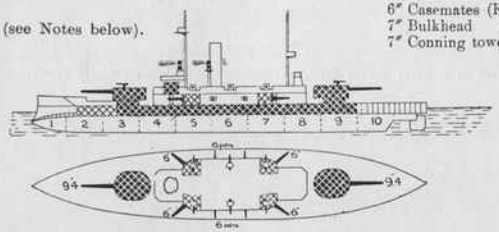
Displacement, 3,500 tons. Complement, 275.

Length (*p.p.*) 275 feet. Beam, 51 feet. Draught, 16½ feet.

Guns:
- 2—9·4 inch, 43 cal.
- 4—5·9 inch, 50 cal.
- 8—3 inch.
- 2—1 pdr.
- 4—20 mm. AA.
- 2—8 mm. AA.

Torpedo Tubes: 4 (see Notes below).

Armour (*see Notes*):
- 7″ Side (amidships) ...
- 6″ Side (fore & aft) ...
- 2½″ Deck (forward) ...
- 2¾″ Deck flat on belt.
- 7″ Turrets ... ...
- 6″ Casemates (KNC)...
- 7″ Bulkhead ... ...
- 7″ Conning tower ...



Machinery: 2 sets, triple expansion, 2 screws. 6 Thornycroft boilers. Coal (*maximum*): 265 tons. I.H.P. 5,400 = 16 kts.

Gunnery Notes.—Guns are Bofors 1906 models.

Armour Notes.—Krupp armour. Belt is 7 feet deep, 3½ feet above and 3½ feet below water-line. It stops 20 feet from bow. Armoured deck is 3 feet above water-line.

Torpedo Notes.—All tubes 18 inch and submerged: 1 bow, 1 stern, 2 broadside.

Engineering Notes.—Trial: 5,400=16 kts. Endurance is about 2,000 miles at 10 kts., and 1,050 miles at 14¾ kts. On a steam trial in the summer of 1939 this old ship made 15·9 kts. with 5,900 I.H.P.

17 + 2 Torpedo Boats. (*Torpedobaade*)

Note.—Danish Torpedo Boats are numbered as follows:—

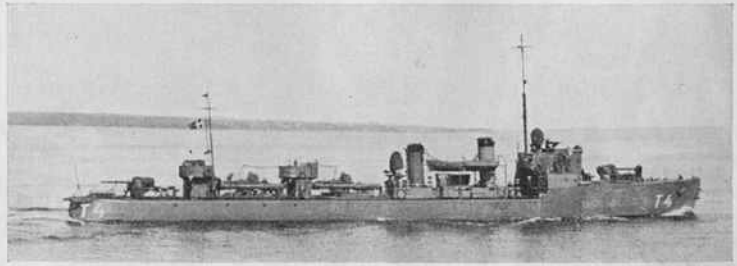
No.	Name	No.	Name	No.	Name.
R 5	*Saxen*	*S 4*	*Söhunden*	*T 5*	*Höyen*
R 4	*Havkatten*	*S 3*	*Sövridderen*	*T 4*	*Glenten*
R 3	*Nordkaperen*	*S 2*	*Skåren*	*T 3*	*Laxen*
R 2	*Makrelen*	*S 1*	*Springeren*	*T 2*	*Hvalen*
S 6	*Narhvalen*	*P 1*	*Hvalrossen*	*T 1*	*Dragen*
S 5	*Havörnen*	*T 6*	*Örnen*		

New Construction

1939, *Official Sketch*

2 Torpedo Boats laid down at Royal Dockyard, Copenhagen, 1939. Displacement: 710 tons. Dimensions: 279 (*pp.*) × 27½ × 8 feet. Guns: 2—4·7 inch, 4—40 mm. AA., 6—20 mm. Tubes: 6—21 inch. 60 Mines carried. Machinery: Geared turbines. 2 shafts. S.H.P.: 21,000 = 35 kts. Oil fuel: 100 tons. Complement: 100.

3 "T 4" Class.

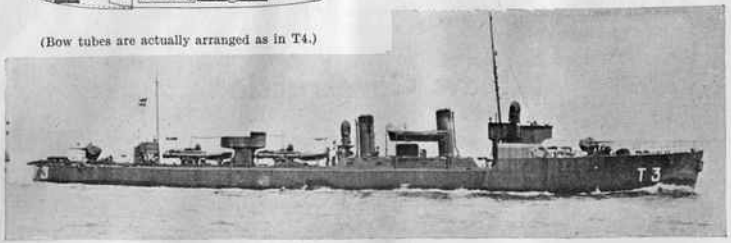


GLENTEN. 1935, *Com. R. Steen Steensen, R.D.N.*

3 boats: ***Glenten, Høgen*** (both 1933), ***Örnen*** (Oct. 19, 1934), all by Royal Dockyard, Copenhagen. 290 tons. Dimensions: 198¾ (*o.a.*) × 19½ × 7¾ feet. Armament: 2—3·5 inch, 2—20 mm. AA., 2—8 mm. AA., 2 D.C.T., 6—18-inch Tubes. Fitted for minelaying. Machinery: Danish Atlas geared turbines. S.H.P.: 6,000 = 27·5 kts. Oil: 40 tons. Complement: 55.

3 "T 1" Class.

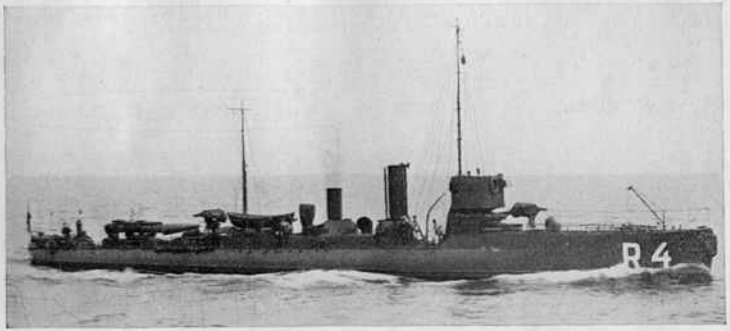
(Bow tubes are actually arranged as in T4.)



LAXEN. 1932 *Photo, Com. R. Steen Steensen, R.D.N.*

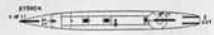
3 boats: ***Dragen*** (Dec., 1929), ***Hvalen, Laxen*** (both 1930), all by Royal Dockyard, Copenhagen. 290 tons. Dimensions: 198¾ (*o.a.*) × 19½ × 7¾ feet. Armament: 2—3 inch, 2—20 mm. AA., 2—8 mm. AA., 8—18-inch Tubes (2 in bow and 2 triples). Machinery: Geared turbines (Brown Boveri in *Dragen* and *Laxen*, Danish Atlas in *Hvalen*). S.H.P.: 6,000 = 27·5 kts. Oil: 40 tons. Complement: 51.

4 "R" Class.

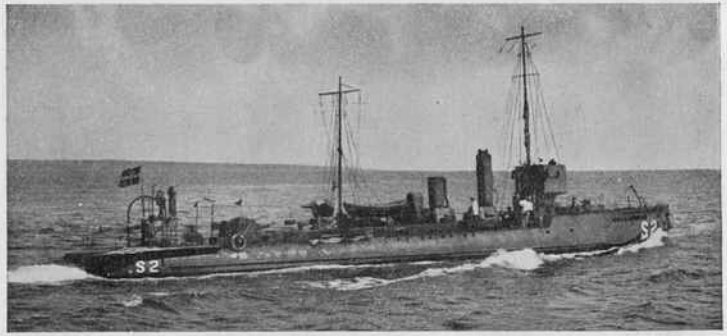


HAVKATTEN. 1934, *Com. R. S. Steensen, R.D.N. (added 1935).*

4 *Improved Ormen* class: ***Havkatten R4, Saelen R5,*** (both launched 1919), ***Makrelen R2, Nordkaperen R3,*** (both launched 1918). All by Royal Dockyard, Copenhagen. Displacement, 110 tons. Complement, 26. Dimensions: 126½ (*o.a.*) × 14 × 8¾ feet *max.* draught. Armament: 2—6 pdr., 30 cal. anti-aircraft; 2—18 inch tubes (one bow, one deck, both *above water*), and two depth charge throwers. I.H.P. 2000 = 24·3 kts. Coal, 15 tons.



6 "S" Class.

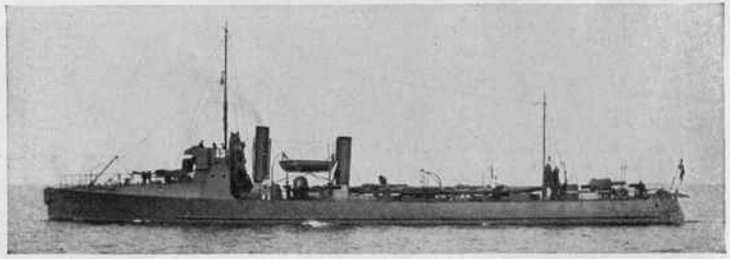


STÖREN 1930 *Photo, Com. R. S. Steensen, R.D.N.*

6 *Improved Ormen* class (similar to above): ***Springeren (S1), Stören (S2), Söridderen*** (ex-*Sölöven*) ***(S3), Söhunden (S4), Havörnen*** (ex-*Havhesten*) ***(S5), Narhvalen (S6).*** (All by Royal Dockyard, Copenhagen, launched 1916–17). Guns: 2—6 pdr. AA., 1—18 inch tube in bow. After tube replaced by mine-sweeping gear. Def 'ls as "R" class above.

1 "P" Class.

(Serves as Gunnery School Tender; sometimes employed on fishery protection duties.)



HVALROSSEN. 1922 *Photo, Com. R. S. Steensen, R.D.N.*

1 *Hvalrossen* type: ***Hvalrossen, P1*** (1913), built at Royal Copenhagen Dockyard. 169 tons. Dimensions: 148½ (*o.a.*) × 17 × 7 feet. Guns: 1—3 inch (aft)., 1—8 mm. AA. 4—18 inch tubes. I.H.P. 3500 = 26 kts. Coal 29 tons. Compl. 33.

Note.—In sketch annexed, positions of double and single deck tubes should be transposed.

12 Submarines (*Undervandsbaade*).

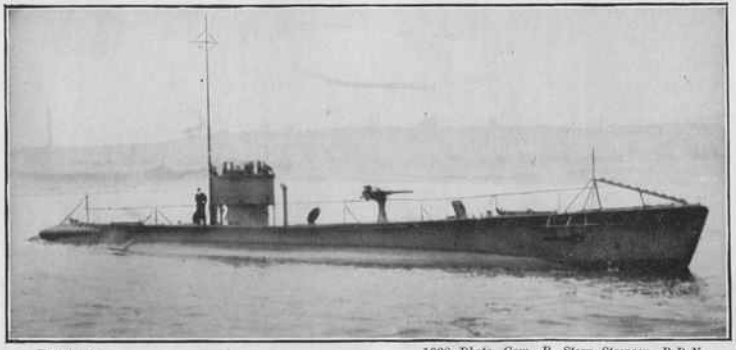
Note.—Danish Submarines are painted green, and numbered thus for identification purposes: *Ran* B9, *Triton* B10, *Galathea* B12, *Rota* C1, *Bellona* C2, *Flora* C3, *Daphne* D1, *Dryaden* D2; *Havmanden* H1, *Havfruen* H2, *Havkalen* H 3, *Havhesten H*4.

4 "H" Class.

HAVMANDEN. 1939, *Com. R. Steen Steensen, R.D.N.*

4 *Navy* type **Havmanden** (June 6th, 1937), **Havfruen** (Nov. 6th, 1937), **Havkalen** (March 3rd, 1938), **Havhesten** (1939). Built at Royal Dockyard, Copenhagen. Displacement: 314/407 tons. Dimensions: 155¾ (*o.a.*) × 14½ × 9½ feet. Armament: 2—40 mm. AA., 2—8 mm. AA. 5—18-inch tubes (3 bow, 2 stern). B. & W. Diesels. B.H.P.: 1,200/450 = 15/7 kts. Complement: 20

2 "D" Class.

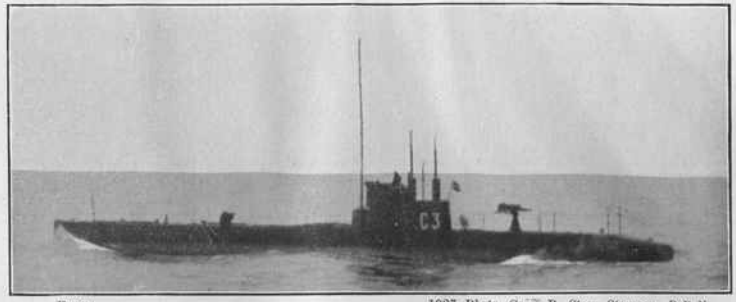


DRYADEN. 1928 *Photo, Com. R. Steen Steensen, R.D.N.*

(Mast since struck.)

2 *Navy* type: **Daphne** (Dec., 1925), **Dryaden** (June 3, 1926). Built at Royal Dockyard, Copenhagen. Displacement: 301/381 tons. Dimensions: 160¾ (*o.a.*) × 16 × 8¾ feet. Burmeister & Wain type Diesels. H.P.: 900/400 = 13·5/6·5 kts. Armament: 1—3 inch gun 1—20 mm. AA., 4 bow and 2 stern 18 inch tubes. *Daphne* completed 1926, *Dryaden* 1927. Complement: 25.

3 "C" Class.



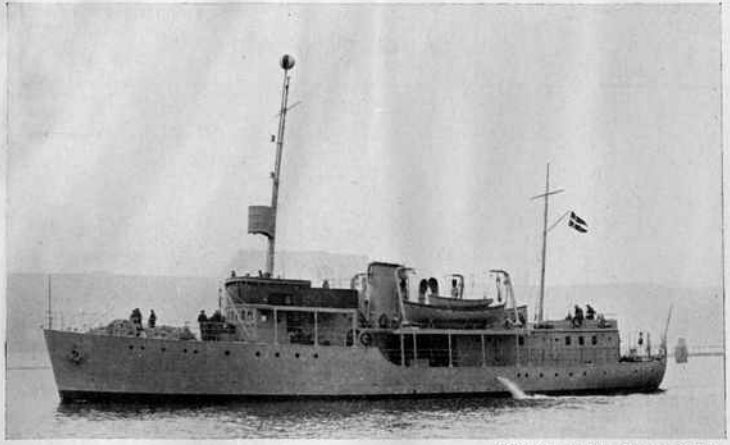
FLORA. 1927 *Photo, Com. R. Steen Steensen, R.D.N.*
(No mast now.)

3 *Navy* type: **Bellona** (1919), **Flora** (1920), and **Rota** (1918). All built at Royal Dockyard, Copenhagen. Displacement: 300/369 tons. Dimensions: 155¾ (*o.a.*) × 14½ × 9½ feet. Armament: 1—6 pdr. AA., 4—18-inch torpedo tubes (3 bow, 1 stern). *Rota* has one deck tube in addition before C.T. Burmeister & Wain type Diesels. H.P.: 900/640 = 14/8 kts. Complement: 24.

3 "B" Class

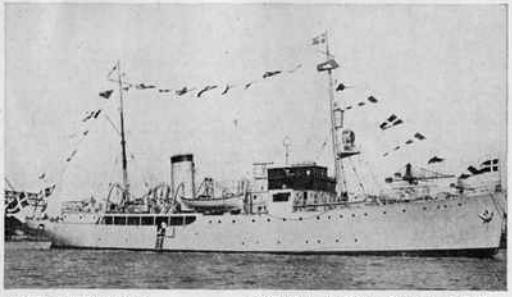
GALATHEA. 1935, *Com. R. Steen Steensen, R.D.N.*

3 *Holland* type: **Galathea** (1916), **Ran** (1915), **Triton** (1915), all built at Royal Dockyard, Copenhagen. Displacement: 173/237 tons. Dimensions: 133½ (*o.a.*) × 12½ × 8 feet. Armament: 3—18-inch torpedo tubes (2 bow, 1 stern), 1—6 pdr. AA. gun, Burmeister & Wain type Diesels. H.P.: 450/340 = 13/6·5 kts. Complement: 14.



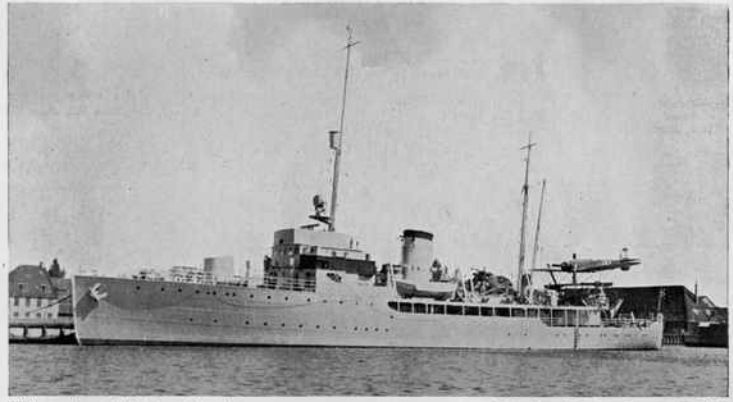
1939, *Com. R. Steen Steensen, R.D.N.*

FREJA (Dec. 22, 1938). Built at Royal Dockyard, Copenhagen. Displacement: 322 tons. Complement: 40. Dimensions: 124¾ (*pp.*), 134 (*o.a.*) × 25¼ × 7¼ feet. Guns: 2—3 inch, 2—20 mm. AA. (Not mounted when on Surveying Service.) Machinery: Triple expansion, 1 shaft. I.H.P.: 300 = 10·5 kts. Boilers: 1 cylindrical. Oil fuel: 15 tons. Classed as *Opmaalingsskib* (Surveying Vessel).



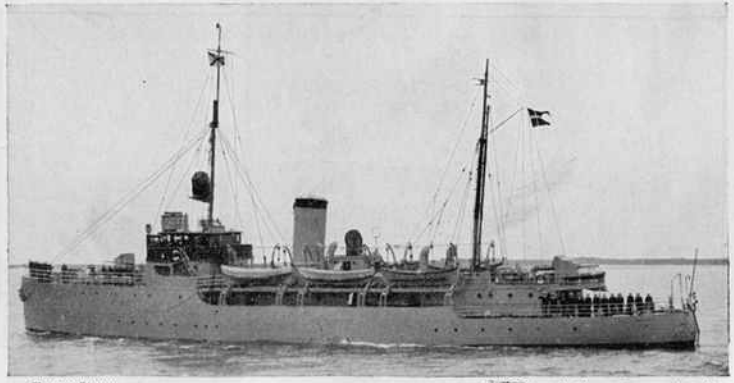
(Topmasts now taller). 1935, *Com. R. Steen Steensen, R.D.N.*

HEJMDAL (Royal Dockyard, Copenhagen, Feb. 1, 1935). Displacement 705 tons. Complement: 40. Dimensions: 175 (*o.a.*) × 30 × 12 feet. Guns: 2—3 inch, 4—20 mm. AA., 2—8 mm. AA. Machinery: Triple expansion. 1 shaft. I.H.P.: 800 = 13 kts. Boilers: 2 cylindrical. Oil: 100 tons. Radius: 4,000 miles at 12 kts. Completed April, 1935. Classed as a Surveying Vessel, but also employed on Fishery Protection duties in Greenland waters and off the Färöes.



With seaplane added to equipment. 1938, *Com. R. Steen Steensen, R.D.N.*

INGOLF (Royal Dockyard, Copenhagen, 1933). Displacement: 1,180 tons. Complement: 66. Dimensions: 213½ (*p.p.*), 226 (*o.a.*) × 35½ × 16 feet (*max.*). Guns: 2—4·7 inch, 2—6 pdrs./57 mm., 2—20 mm. AA., 2—8 mm. AA. Machinery: Triple expansion. 1 shaft. I.H.P.: 2,935 = 16·5 kts. Boilers: 2 Thornycroft. Oil: 170 tons. Radius: 5,300 miles at 12 kts. On service in Greenland waters. Visits Iceland occasionally. Classed as *Fiskeriinspektionsskib*.



HVIDBJÖRNEN. 1936, *Com. R. Steen Steensen, R.D.N.*

HVIDBJÖRNEN (Royal Dockyard, Copenhagen, 1928). Displacement: 1,050 tons. Complement, 61. Dimensions: 196¾ (*p.p.*) × 32 × 13 feet (*mean* draught). Guns: 2—3·5 inch. Machinery: Double compound Lentz valve engine. 1 shaft. I.H.P.: 1,800 = 14·5 kts. 2 boilers (1 Babcock, 1 Thornycroft). Oil: 140 tons. Radius: 2,300 miles at 12 kts. On service in Icelandic waters. Classed as *Fiskeriinspektionsskib*.

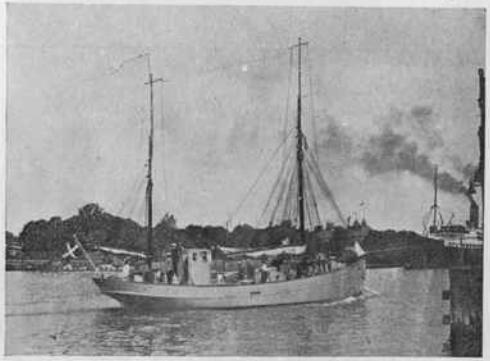
Note.—The name of this ship means White Bear.

Fishery Patrol Vessels—*continued.*

1921 *Photo, Commdr. R. S. Steensen, R.D.N.*

ISLANDS FALK (Elsinore 1906). 730 tons. Complement, 64. 170·6 (*p.p.*), 183·6 (*o.a.*) × 29·3 × 16·9 feet. Guns: **2**—3 inch, 2—3 pdr. I.H.P. 1100 = 11·7 kts (*f.d.*) Cruising speed is 9 kts. Re-boilered 1921. Employed on North Sea Fisheries and Färöes.

Now has short Topmasts. To be replaced in near future.



1932 *Photo, Commdr. R. S. Steensen, R.D.N.*

MAAGEN (Frederikssund, 1930). Wood. Displacement: 90 tons. Dimensions: 71½ (*o.a.*) × 16½ × 9½ feet. Guns: **1**—37 mm. 1 Tuxham motor. B.H.P.: 108 = 8 kts. Complement: 11.
On service in Greenland waters. Classed as Fishery Patrol Cutter (*Fiskeriinspektionsfartöj*).

1921 *Photo, Commdr. R. S. Steensen, R.D.N.*

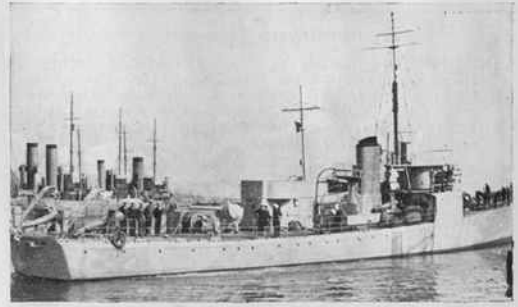
BESKYTTEREN (1900). 415 tons. Comp. 47. 134 (*p.p.*), 142·5 (*o.a.*) × 24·8 × 12·5 feet. Guns: **1**—6 pdr., **2**—8 mm. AA, I.H.P. 620 = 11 kts. (*f.d.*). Cruising speed is 9 kts. Re-boilered 1920. Employed in North Sea and inside Skaw. At certain seasons serves as midshipmen's training ship and aircraft tender.

TERNEN. 1938 *Official.*

TERNEN (Faaborg, 1937.) Wood. Displacement: 82 tons. Complement: 11. Dimensions: 68½ (*o.a.*) × 16¾ × 9¾ feet. Guns: **1**—37 mm. 1 Möller & Jochumsen Diesel engine. B.H.P.: 110 = 8 kts. Employed on fishery research and coastal surveying duties, Greenland. Classed as Surveying Tender (*Opmaalingsfartöj*).

Minesweepers.

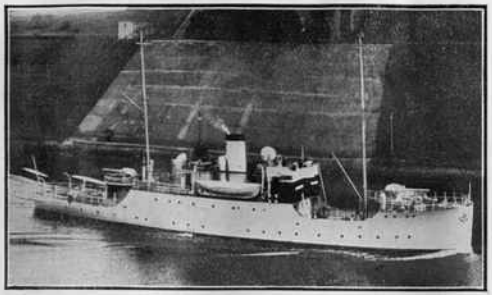
SÖLÖVEN. 1939, *Com. R. Steen Steensen, R.D.N.*



SÖLÖVEN. 1939, *Com. R. Steen Steensen, R.D.N.*

SÖBJÖRNEN (Feb. 16, 1939), **SÖLÖVEN** (Dec. 3, 1938), **SÖULVEN** (1939). Laid down 1938, at Royal Dockyard, Copenhagen. Displacement: 270 tons. Complement: 47. Dimensions: 176½ (*o.a.*), 170 (*pp.*) × 20¾ × 6½ feet. Guns: **2**—3 inch, **4**—20 mm. AA., **4**—8 mm. AA., **2** D.C.T. Equipped for minelaying. Machinery: Geared turbine, 1 shaft. S.H.P.: 2,200 = 19 kts. Boiler: 1 Thornycroft 3-drum type. Oil fuel: 30 tons.

Submarine Depôt and Repair Ship.

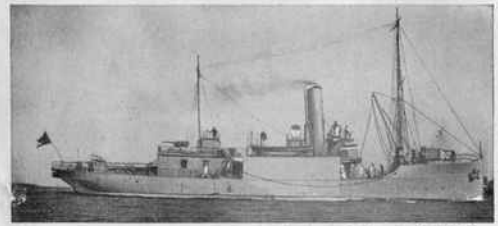


HENRIK GERNER. 1928 *Photo.*

HENRIK GERNER (Royal Dockyard, Copenhagen, 1927). Displacement: 463 tons. Dimensions: 160 (*o.a.*) × 27 × 9·3 feet. Guns: 2—3 inch, 2—8 mm. AA. 2 Burmeister & Wain 6-cylinder, 4-cycle Diesel engines of 900 combined B.H.P. = 13·2 kts. Oil: 45 tons. Complement: 46. Fitted for minelaying.

Minelayers (*Mineskibe*).

LINDORMEN, Building at Royal Dockyard, Copenhagen. Displacement: 614 tons. Complement: 58. Dimensions: 167½ (*pp.*) × 29 × 8 feet. Guns: 2—3 inch, 3—20 mm. AA. Mines: 150. Machinery: Triple expansion. 2 shafts. I.H.P.: 1,200 = 14 kts. Boilers: 2 Thornycroft 3-drum type. Oil fuel: 35 tons. Will replace *Lossen*.



Photo, Ministry of Defence (added 1921).

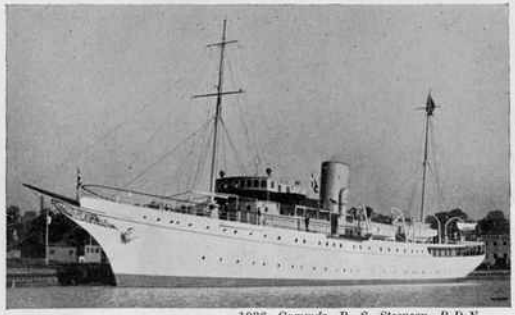
LOSSEN (1910). 640 tons. Complement, 61. 149¼ (*pp.*) × 28 × 10 feet. Guns: 2—3 inch, 2—8 mm. AA. I.H.P.: 900 = 12 kts. Coal: 44 tons. 175 mines carried.

Mining Tenders (*Minefartöier.*)

1920 *Photo, Com. R. Steen Steensen, R.D.N.*

KVINTUS (1917), **SIXTUS** (1919), (Royal Dockyard, Copenhagen) 186 tons. Dimensions: 88·5 (*p.p.*) × 20·7 × 6·6 feet (*mean* draught). Guns: 2—1 pdr. Machinery: in each, 2 sets of Bergsund surface-ignition, heavy-oil motors and electric drive. B.H.P. 300 = 8 kts. Complement, 27. Carry 60 mines.

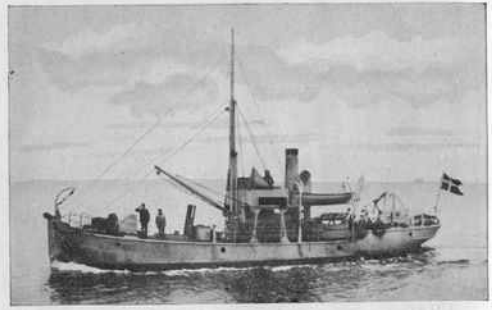
Royal Yacht (*Kongeskib*).



1936, *Commdr. R. S. Steensen, R.D.N.*

DANNEBROG (Royal Dockyard, Copenhagen, 1931). 1,130 tons. Complement: 57. Dimensions: 246 (*o.a.*) × 34 × 11¼ feet. Guns: 2—37 mm. Two Burmeister & Wain 8-cylinder, 2-cycle Diesels. B.H.P.: 1,800 = 14 kts.

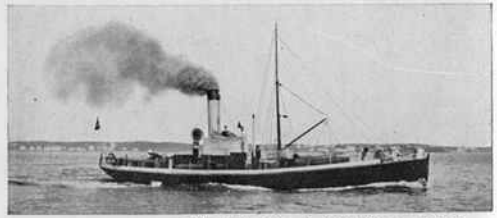
Harbour Tender.



1930 *Photo, Com. R. Steen Steensen, R.D.N.*

DAMPBAAD A (ex-*Minekran I*) (1896). 96 tons. Dimensions: 72½ (*o.a.*) × 16½ × 6½ feet. Guns: 2 machine. Speed: 7 kts. Complement: 18.

Torpedo Tender (*Torpedo Transportbaad*).



1920 *Photo Com. R. Steen Steensen, R.D.N.*

SLEIPNER (1882). 80 tons. 73 (*o.a.*) × 14¾ × 6 feet (*mean* draught). Guns: none. I.H.P.: 110 = 9 kts.

EGYPT.

A :—Royal Egyptian Navy.

A sum of £3,500,000 is to be expended over two years in the construction of a cruiser, 4 minesweepers and 6 torpedo boats, orders for which it is proposed to place with British yards.

British Naval Adviser : Captain G. T. Philip, D.S.C., R.N.

Mercantile Marine : ("Lloyd's Register" 1939 figures)
56 vessels of 109,825 tons gross.

B :—Coastguard and Fisheries Administration.

Transport.

1930 *Photo. Swan, Hunter.*

EL AMIRA FAWZIA (Swan, Hunter, July 8th, 1929). 2,640 tons. Dimensions : 275 × 36 × 14 feet. Guns : 2—3 pdr. Machinery : Triple expansion. H.P. : 2,130 = 14 kts. 2 screws. 2 S.E. boilers (working pressure, 180 lbs.). Oil fuel. Fitted as transport for 400 men and 40 horses. Normally employed on coasting service carrying passengers. Complement, 79.

Sloop.

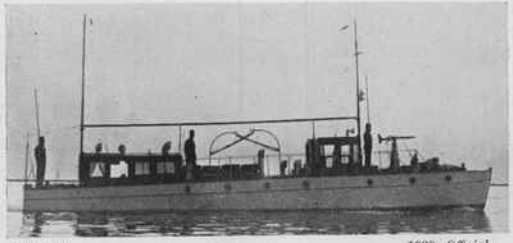
EL AMIR FAROUQ (Hawthorn, Leslie, 1926). 1441 tons. Dimensions : 247 × 34 × 13¼ feet. Guns : 1—6 pdr. 4 M.G. Machinery : Triple expansion. 2 screws. I.H.P. : 2,800 = 17 kts. 2 s.c. boilers, working pressure, 180 lbs. Oil fuel. Complement : 70.

Motor Patrol Vessels.

1939, *Official.*

RAQIB (Alexandria, 1938). Dimensions : 66 × 12½ × 4 feet. Guns : 1—37 mm. Machinery : 2 Otto Deutz 8-cyl. Diesel engines. 2 shafts. B.H.P. : 540 = 15 kts. Fuel : 520 gallons. Complement : 9.

AL SAREA (J. S. White & Co., Ltd., 1936). Displacement : 20 tons. Dimensions : 55 × 11½ × 3½ feet. Guns : 1—37 mm. Machinery : 2 Kermath 12-cyl. petrol engines. H.P. : 900 = 35 kts. Fuel : 340 gallons. Complement : 9.



DARFEEL. 1939, *Official.*

DARFEEL, NOOR-EL-BAHR (Thornycroft, 1925). Displacement : 20 tons. Dimensions : 56 × 11 × 3½ feet. Guns : 1—37 mm. Machinery : 3 Thornycroft 6-cyl. petrol engines. 3 shafts. B.H.P. : 330 = 17 kts. Fuel : 600 gallons. Complement : 9.

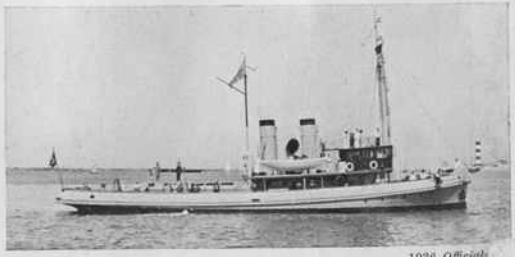
Research Vessel.

1930 *Photo, Swan, Hunter.*

MABAHISS—Built by Swan, Hunter, and completed 1930. Displacement : 618 tons. Dimensions : 138 × 23½ × 13½ feet. Machinery : Triple expansion. 1 shaft. I.H.P. : 650 = 11 kts. 1 s.c. boiler. Fuel : Coal. Complement : 39.

C :—Ports and Lighthouses Administration.

Salvage Tug.

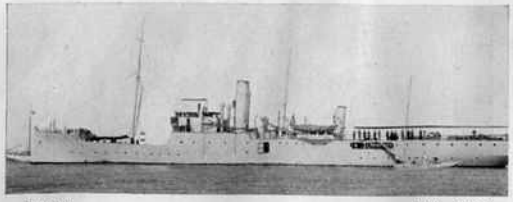


1936 *Official.*

PHAROS (1929). Displacement, 455 tons. Dimensions : 131 feet (*o.a.*) × 27 × 14 feet *depth*. I.H.P. 1,000 = 12 kts. Equipment includes 2—10 inch centrifugal pumps, capacity of each 500 tons per hour. (There are 2 smaller tugs, *Teir-el-Mina* and *Safaga*, 195 and 80 tons respectively.)

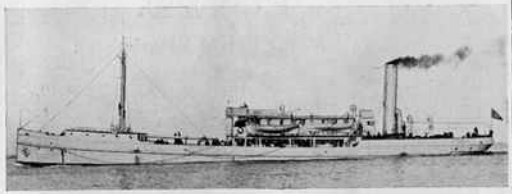
C:—Ports and Lighthouses Administration
—continued

Transports



SOLLUM. 1939, *Official.*

SOLLUM (ex-H.M.S. *Syringa*, of *Anchusa* class.) Built by Workman, Clark & Co., 1917. Displacement: 1,290 tons. Dimensions: 255½ (*pp.*), 262½ (*o.a.*) × 35 × 16 feet. Guns: 1—3 pdr. I.H.P.: 2,500 = 16 kts. 1 screw. Coal: 260 tons. Many alterations have been effected at considerable cost to fit this vessel for accommodation of Government officials on visits of inspection, etc., to Mediterranean coast. Complement: 77.



1939, *Official.*

NAPHTYS (Howaldt, Kiel, 1905). Displacement: 620 tons. Dimensions: 187¾ (*pp.*) × 35 × 8½ feet. Machinery: Triple expansion. 1 shaft. I.H.P.: 360 = 7 kts. Complement: 47.

Coastal Motor Boats.

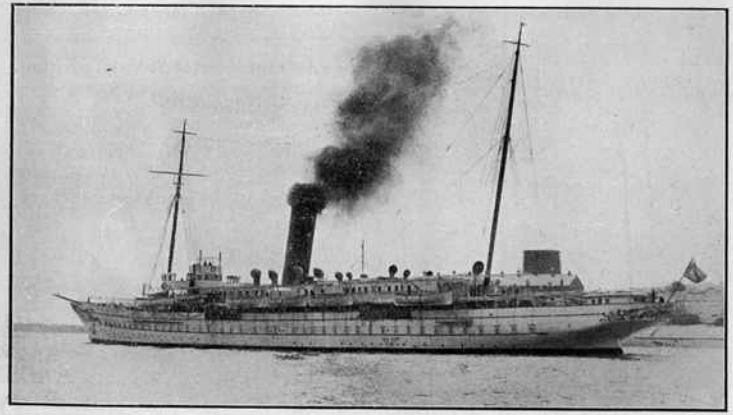
QAMAR	23 tons.	71 feet.	11 kts.
EL HOOT	24 tons.	46 feet.	7 kts.

Lighthouse Tender.

Foretopmast since struck.

AÏDA (A. & Ch. de la Loire, Nantes, 1911). 1428 tons *gross*. Dimensions: 246½ × 31½ × 13½ feet draught. I.H.P. 1200 = 10 kts. 1 screw. Serves in Red Sea. Complement, 63.

D—Royal Yacht.



MAHROUSSA. 1927 *Photo, Cribb.*

MAHROUSSA. Iron. Built by Samuda Bros., Poplar, 1865. Reconstructed by A. & J. Inglis, Glasgow, 1905, and re-fitted 1919-20 at Portsmouth Dockyard. Displacement: 4561 tons. Dimensions: 400 (*p.p.*), 420 (*w.l.*), 477⅝ (*o.a.*) × 42¾ × 17¼ feet draught. Machinery: 3 Parsons turbines. Boilers (new 1905): 5 main and 1 auxiliary Inglis multitubular. 3 screws. S.H.P. 5500 = 16 kts. Oil: 346 tons. Complement, 164.

DOMINICAN REPUBLIC.

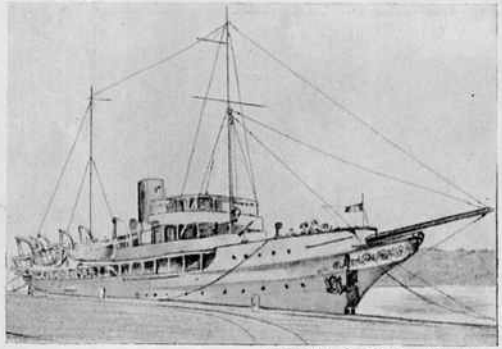
Coastguard Patrol Vessels (*Guardacostas*).

Three (ex-*CG.* 110, 144, 302). (1924). Purchased from U.S. Coast Guard in October, 1938. Wood. Displacement: 37 tons. Dimensions: 75 × 13¾ × 4 feet. Guns: 1—1 pdr. Machinery: Petrol engine. B.H.P.: 400 = 13·5 kts.

Transport.

PRESIDENTE TRUJILLO (ex-*Presidente Machado*, ex-*Comerio*, ex-*Guantanamo*, ex-*Registan*). (Wm. Gray & Co., Ltd., West Hartlepool, 1910). 3,349 tons *gross*. Dimensions: 350½ × 46½ × — feet. Guns: Not reported. Machinery: Triple expansion I.H.P.: 2,000 = 11 kts.

Presidential Yacht.



Added 1940, *Mr. Matthew Thomlinson*

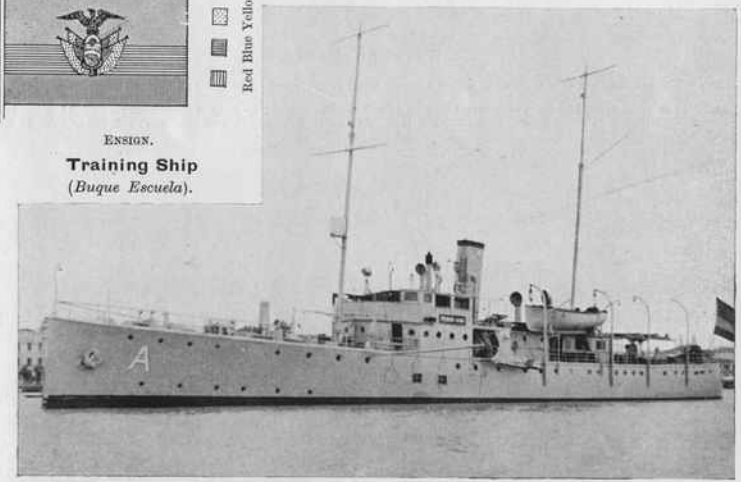
RAMSIS (ex-*Camargo*). (1928). 969 tons *gross*. Dimensions: 181½ (*w.l.*), 225 (*o.a.*) × 32½ × — feet. Guns: 2—3 pdr. Machinery: 2 sets Diesels.

ECUADOR

Personnel : About 400.

ENSIGN.

Training Ship
(*Buque Escuela*).



1936, *courtesy Lieut. L. F. Bouman*

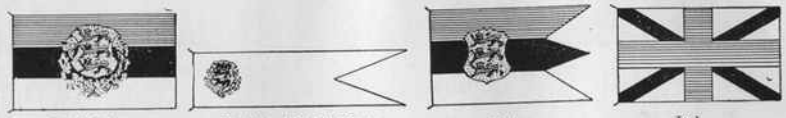
PRESIDENTE ALFARO (ex-yacht *Ara*). (Camper & Nicholsons, Southampton, 1917). Purchased 1935. Displacement: 1,030 tons *Std.* Dimensions: 213 (*w.l.*) × 31¼ × 14½ feet. 2 Atlas Diesels. 2 shafts. B.H.P. 2,400 = 16 kts.

ESTONIA

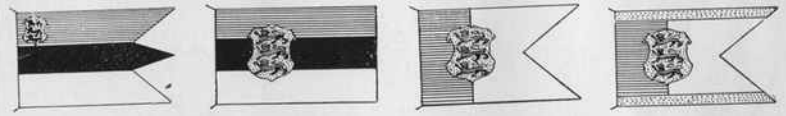
Special note.—In view of recent political developments, it is assumed that the Estonian Fleet will become part of the Soviet Navy.

Naval Uniforms.

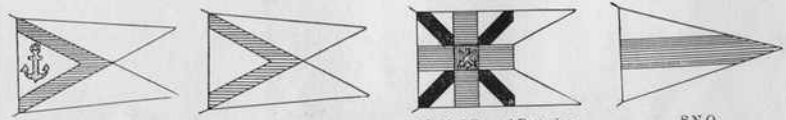
Flank (British equivalent)
Kontradmiral (Rear-Admiral)
Mereväe-Kapten (Captain)
Kapten-Leitnant (Commander).
Kapten-major (Lieut.-Commander).
Vanem-Leitnant (Lieutenant senior)
Leitnant (Lieutenant)
Noorem-Leitnant (Sub-Lieutenant)



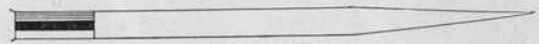
Chief of State.
Pendant of Chief of State.
Ensign.
Jack, Flag of Coastal Batteries.



Auxiliary Craft. (Ensign.)
Minister of War.
Rear-Admiral
C. in C.



Chief of Naval Forces (If not a flag officer).
Chief of Division.
Chief of Coastal Batteries.
S.N.O.



Masthead Pendant.

MERCANTILE ENSIGN.

Commander-in-Chief of Fleet and Coast Defence: Captain V. Mere.
Chief of Naval Staff: Captain R. Linnuste.
Naval Officers and Men: 1600
Colour of Ships: Grey.
Mercantile Marine ("Lloyd's Register" 1939): 184 vessels of 200,410 gross tonnage.

Submarines.

LEMBIT. 1937, *Wright & Logan.*

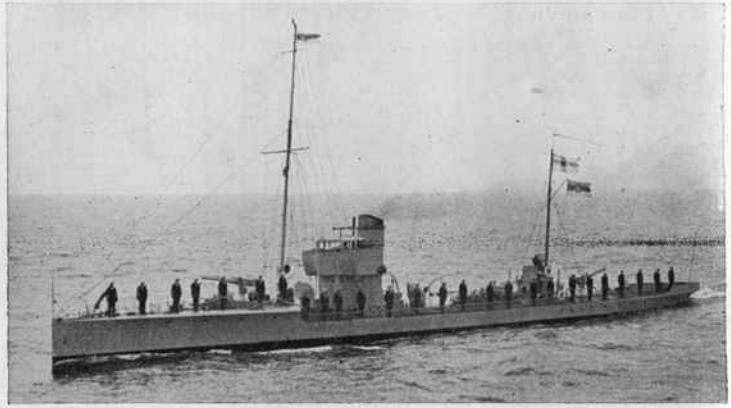
KALEV. 1937, *courtesy Messrs. Vickers-Armstrongs (Builders).*

2 *Vickers-Armstrongs* type: ***Kalev, Lembit*** (July 7, 1936). Both built at Barrow. Displacement: 600/820 tons. Complement: 30. Dimensions: 190 (*o.a.*) × 24½ × 11½ feet. Armament: 1—40 mm. AA. gun, 4—21 inch Torpedo tubes (bow), 20 mines. Machinery: 2 Vickers Diesels. B.H.P.: 1,200 = 13·5 kts. on *surface*. Electric motors, H.P.: 450 = 8·5 kts. *submerged*. Radius of action, 2,000 miles at 10 kts.

Torpedo Boats.

Note.—The construction of a number of motor torpedo boats is projected. Number and design still to be settled.

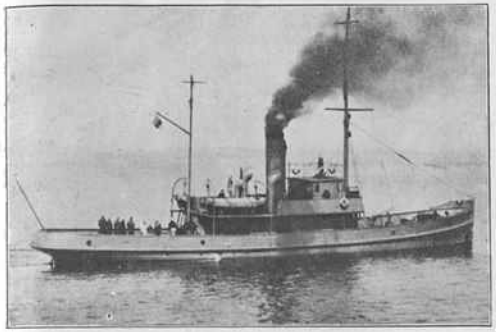
One was ordered from Messrs. Thornycroft in Jan., 1939. Displacement: 35 tons. Dimensions: 72 × 16 × — feet. Armament: 2—18-inch tubes, 1—20 mm., 2 M.G. Machinery 4 Y 12-cyl. engines. H.P.: 2,400 = over 40 kts.



1934 *Photo, Official.*

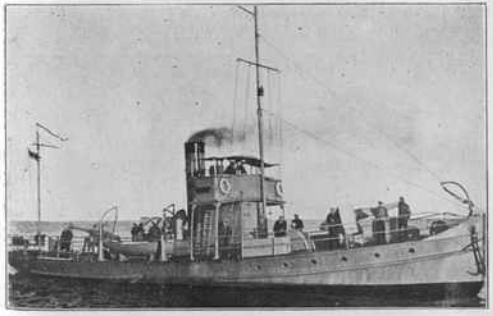
Sulev (ex-German *A32*). Built at Elbing, 1916. (Sunk off Estonian Coast, October, 1917, salved and refitted 1923.) Displacement, 228 tons. Dimensions: 165½ × 17½ × 6 feet. Guns: 2—3 inch, 50 cal. Torpedo tubes: 2—18 inch, in double deck mounting. Can carry 10 mines. Designed S.H.P. 2500 = 26 kts. Oil: 50 tons = 975 miles at 20 kts. Complement, 35. Main mast shortened 1932. Refitted, 1935.

Gunboats. (*Suurtükilaevad*)



1929 *Official Photo.*

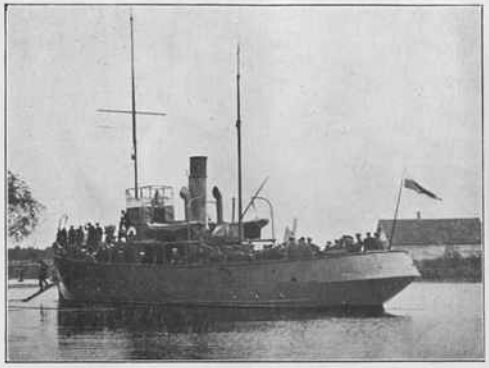
LAINE (ex-*Sputnik*) (1915). 400 tons. Dimensions: 129 × 20 × × 11½ feet. Guns: **2**—75 m/m. Designed H.P.: 350 = 12 kts. Coal: 30 tons. Complement: 25. (Refitted 1930). Employed as tender to Submarine Division.



1929 *Official Photo.*

MARDUS. Refitted 1921. 80 tons. Dimensions: 90 × 21 × 7 feet. Guns: **2**—3 inch, 50 cal., **2** M.G. Designed H.P. 225 = 11 kts. Complement, 25. In Reserve.

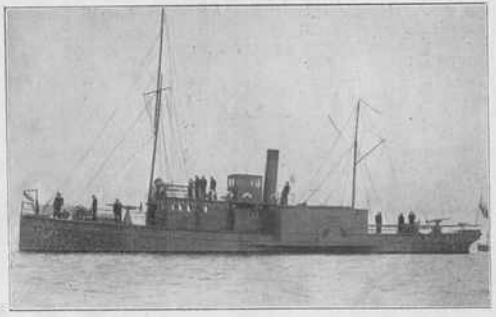
Gunboats—*continued.*



1929 *Official Photo.*

***AHTI.** Built 1908, refitted 1929. 144 tons. Dimensions: 90½ × 16½ × 6 feet. Guns: **2**—47 m/m., **2** M.G. Designed H.P. 220 = 10 kts. Complement, 17.

*Stationed in Peipus Lake.

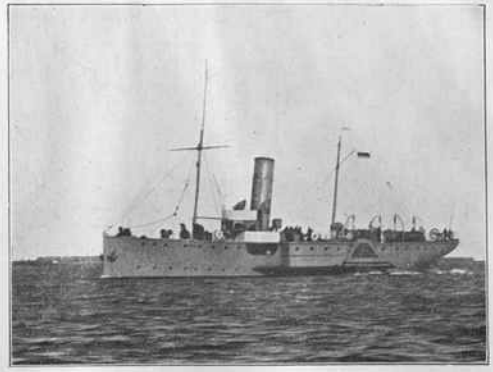


1929 *Official Photo.*

***TARTU** (ex-*Yurieff*). Paddle vessel. Refitted 1919. 108 ton. Dimensions: 128½ × 17½ × 2¾ feet. Guns: **2**—47: m/m., **2** M.G. Designed H.P. 120 = 11 kts. Complement 20. (Refitted 1931).

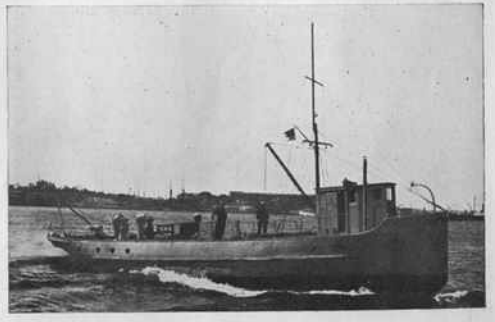
*Stationed in Peipus Lake.

Minelayers.



RISTNA. 1929 *Official Photo.*

RISTNA (1908), **SUUROP** (1907). Paddle Vessels. Refitted 1927. 500 tons. Dimensions: 198½ × 49½ (over paddle boxes) × 6½ feet. Guns: **1**—3 inch, 50 cal., **1**—1 pdr. Pom-Pom. Designed H.P.: 750 = 12·5 kts. Complement: 40. Also fitted for use as Minesweepers. Original respective names were *Petr* and *Pavl*; subsequently they became Nos. 18 and 19.

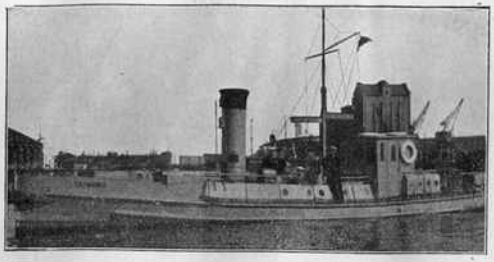


VAINDLO. 1933 *Official Photo.*

KERI (ex-*Kalev*, ex-Russian *M.8*), **VAINDLO** (ex-*Olev*, ex-Russian *M.16*) (1914). 50 tons. Dimensions: 68½ × 15 × 4 feet. Guns: **1**—57 m/m. Engines: 2 sets of petrol motors. Designed H.P. 80 = 9 kts. Complement, 10.

Minesweeper.

(See also *Ristna* and *Suurop*, on preceding page.)



1929 *Official Photo.*

TAHKONA (1919). 45 tons. Dimensions: $57\frac{1}{2} \times 10\frac{1}{2} \times 5\frac{1}{2}$ feet. Designed H.P. 150 = 12 kts. Complement, 8.

Coastguard Vessels.

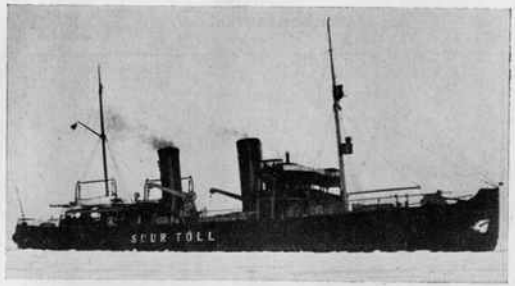
A new coastguard vessel and Presidential yacht was launched at Tallinn in 1939. Displacement: 600 tons. Dimensions: 190 × 24 × 8 feet. Speed: 16 kts.

KÕU (ex-Russian tug *Isabella*). Refitted 1928. 100 tons. Dimensions: 87 × $17\frac{1}{2}$ × $8\frac{1}{2}$ feet. Guns: 1—47 m/m., 2 M.G. Designed H.P.: 350 = 10 kts. Complement: 18.

1929 *Official Photo.*

ERILANE. Built 1915, refitted 1919. 25 tons. Dimensions: 53 × 10 × 5 feet. 1 M.G. Designed H.P. 50 = 10 kts.

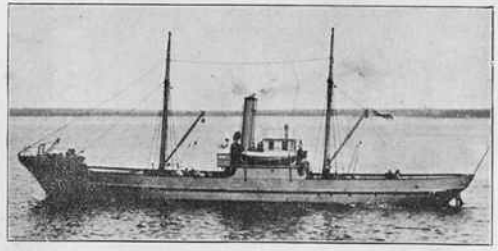
Icebreakers.



1939, *Official.*

SUUR TÕLL (ex-*Vainamoinen*, ex-*Volhynetz*, ex-*Tsar Mikhail Feodorovitch*, 1914) Displacement, 3,622 tons. Dimensions: $236\frac{1}{2} \times 57 \times 18\frac{3}{4}$ feet. H.P. 4,500 = 13.5 kts. **TASUJA** (ex-*Herkules*, (1,100 tons), **MERIKARA** (1934, 280 tons), and **JURI VILMS** (ex-*Vladimir*), (200 tons), are in peacetime all under the control of the Government Shipping Board.

Tugs and Tenders.

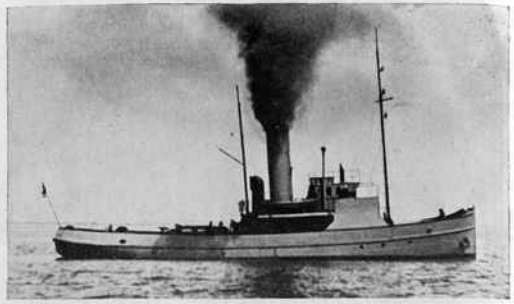


1929 *Official Photo.*

KOMPASS (1918). 300 tons. Dimensions: 143 × 21 × 12 feet. Designed H.P. 220 = 9 kts. Complement, 20. Fitted for cable laying.

SEKSTANT (1919). Sister ship to above. Employed as Lighthouse Tender under Shipping Board.

Tugs and Tenders—*continued.*



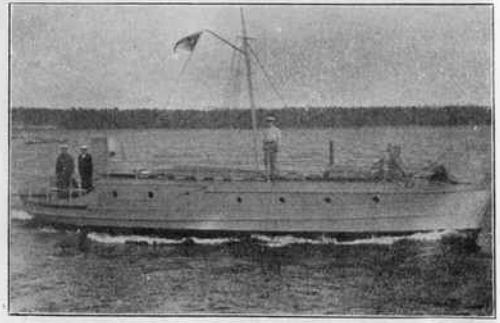
JAAN POSKA. 1939, *Official.*

JAAN POSKA (ex-*Revel*, ex *Snieg*). 250 tons. Dimensions: 101 × 21 × $9\frac{1}{2}$ feet. H.P.: 600 = 11 kts. Complement: 15. Commissioned in 1929 as a Tug-icebreaker.

SAKALA. 40 tons. Dimensions: 62 × 11 × $6\frac{1}{2}$ feet. Designed H.P. 40 = 8 kts. Complement, 6.

M.P. 10. 1939, *Official*

M.P.10. 24 tons. Dimensions: $55\frac{1}{2}$ × $9\frac{1}{2}$ × $3\frac{1}{2}$ feet. Designed H.P. 100 = 13·5 kts. Complement, 6.



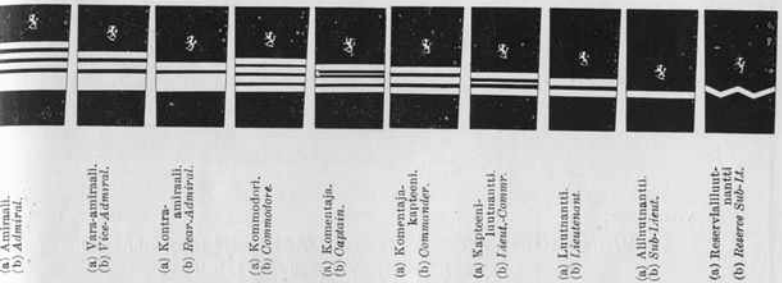
1929 *Official Photo.*

M.P.8., M.P.14., M.P.23. (1909). 12 tons. Dimensions: 53 × 13 × 6 feet. Designed H.P. 55 = 9 kts. Complement, 6.

FINLAND.

Uniforms.

(a) = Finnish Rank (b) = British Rank



(a) Amiraali. (b) *Admiral.* | (a) Vara-amiraali. (b) *Vice-Admiral.* | (a) Kontra-amiraali. (b) *Rear-Admiral.* | (a) Kommodori. (b) *Commodore.* | (a) Komentaja. (b) *Captain.* | (a) Komentaja-kapteeni. (b) *Commander.* | (a) Kapteeni-luutnantti. (b) *Lieut.-Commr.* | (a) Luutnantti. (b) *Lieutenant.* | (a) Aliluutnantti. (b) *Sub-Lieut.* | (a) Reservialiluutnantti. (b) *Reserve Sub-Lt.*

The figure over top stripe is the Lion of the Finnish Arms, as enlarged sketch reproduced herewith. Colour of cloth between stripes :—

Engineers : purple ; *Paymasters :* silver stripes and 1 silver star ; *Surgeons:* red ; *Army officers in Naval Service :* green. *Reserve* officers have wavy stripes as R.N.V.R.

Minister of Defence : General Rudolf Walden.

Chief of Sea Forces : Major-General V. L. R. Valve.

Chief of Staff : Capt. R. Hakola.

Commanding Coastal Fleet : Commodore E. A. Rahola.

Naval Attaché (London) : Commander Holger Gröndahl.

Personnel : Active List, including Coastal Artillery, about 4,500 officers and men.

Wireless.

Marconi, Western Electric and Telefunken systems used.

Colour of Ships.

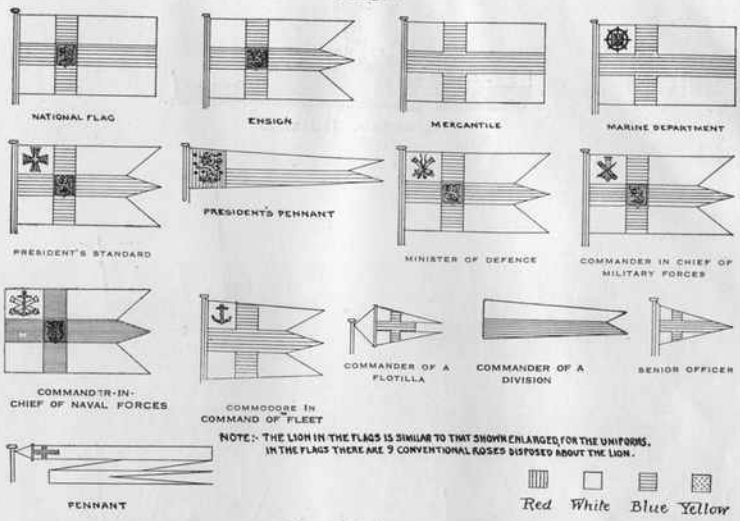
Grey.

Mercantile Marine.

(From "Lloyd's Register," 1939)

432 vessels of 625,531 *Gross* Tonnage.

Flags :—



Naval Ordnance.

(Not all mounted afloat at present),

Calibre inches.	m/m.	Maker.	Length.	M.V.	Weight of A.P. projectile.
10	254	B	45	2788 f/s.	495 lbs.
6	150	C	Howitzer	2601 ,,	91 ,,
4·7	120	A	41	2132 ,,	44 ,,
4·7	120	V	50	3001 ,,	44 ,,
4·7	120	C	45	2699 ,,	44 ,,
4·1	105	B	50	2952 ,,	35 ,,
4	102	C	60	2706 ,,	38·5 lbs.

A = Armstrong. B = Bofors. C = Schneider-Canet. V = Vickers.

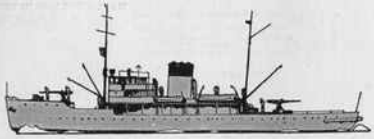
Note.—A gun factory was opened at Jyvaskyla in February, 1939.

VÄINÄMÖINEN. ILMARINEN.

HÄMEENMAA.
UUSIMAA.

KARJALA.
TURUNMAA.

LOUHI.



SISU.

RAUTU. VILPPULA.

VESIKKO.

VETEHINEN *class.*

SAUKKO.

Coast Defence Ships.

(*Panssarilaivat*)

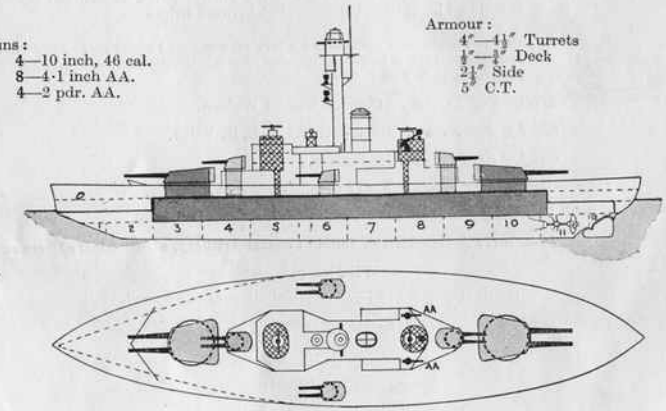
VÄINÄMÖINEN. 1937 *R. Perkins.*

VÄINÄMÖINEN (Dec. 20, 1930). **ILMARINEN** (July 9th, 1931)

Built by A. B. Crichton-Vulcan, Turku, (Åbo).
Displacement : 3,900 tons. Complement, 329.
Dimensions : 305 × 55½ × 14¾ feet.

Guns :
4—10 inch, 46 cal.
8—4·1 inch AA.
4—2 pdr. AA.

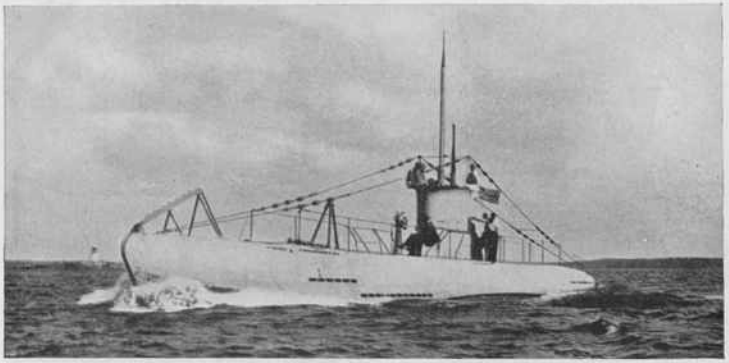
Armour :
4″—4½″ Turrets
½″—¾″ Deck
2½″ Side
5″ C.T.



Machinery : Germania Diesels with electric drive, Leonard system, by Brown, Boveri & Co. 2 shafts. B.H.P. : 5,000 = 15·5 kts. Fuel : 93 tons.

Notes.—Laid dcwn Aug.-Sept., 1929. Completed 1932 and 1933 respectively. Guns: Max. elevation of 10 inch is 50°.

5 Submarines. (*Sukellusveneet*).



Vesikko (1933), built by A/B Crichton-Vulcan as a private speculation and taken over by Finnish Navy Jan. 1936. Displacement: 250/300 tons. Complement, 16. Dimensions: 134½ × 13 × 13¼ feet. 1 M.G. Torpedo tubes: **3**—21 inch. Machinery: Mannheim B.M.V. H.P. 700/360 = 13/7 kts. Fuel: 9 tons. Radius of action, 1,500/50 miles. Diving limit reported to be 50 fathoms.

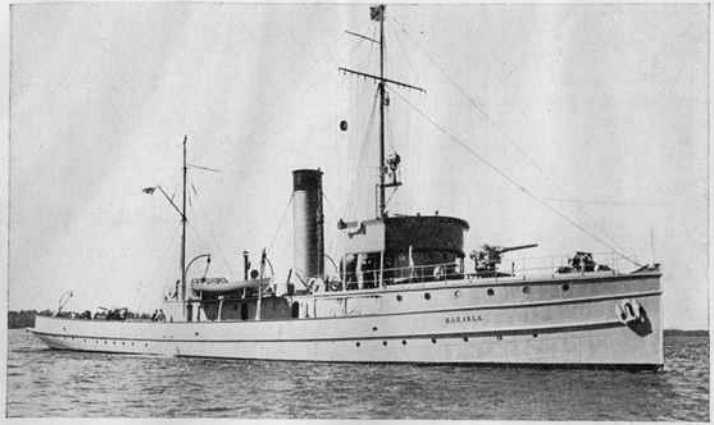
VETEHINEN. 1932 *Official Photo.*

3 boats: ***Vetehinen*** (June 2, 1930), ***Vesihiisi*** (1930), ***Iku-Turso*** (1931). Built by A/B Crichton-Vulcan, Turku, Abo, the first keel being laid in Sept., 1926, other two early in 1927. Displacement: 490/715 tons. Complement, 27. Dimensions: 208½ (*o.a.*) × 20½ × 10½ feet. Torpedo Tubes: 4—21 inch. Guns: 1—3 inch, 1—M.G. Reported to carry 20 mines. Machinery: Atlas Diesels. H.P.: 1,060/600 = 14/8 kts. Fuel: 20 tons. Radius of action: 1,500/75 miles. Diving limit: 40 fathoms.

1932 *Official Photo.*

1 boat: ***Saukko*** (1930). Laid down 1929 by Hietalahden Laivatelakka of Helsinki. Displacement: 100/136 tons. Complement, 13. Dimensions: 106¾ × 13¾ × 10¼ feet. 1 M.G. 2—18 inch torpedo tubes. 9 mines. Machinery: Germania Diesels. H.P. 200/150 = 9/6 kts. Radius of action, 375/45 miles.

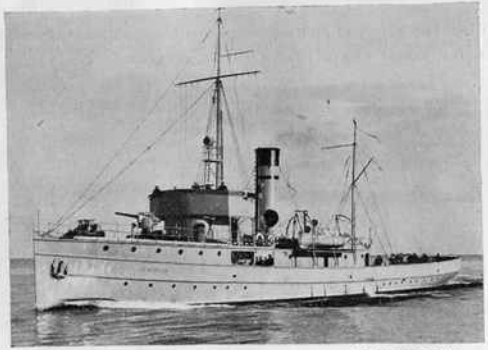
4 Gunboats (*Tykkiveneet*)



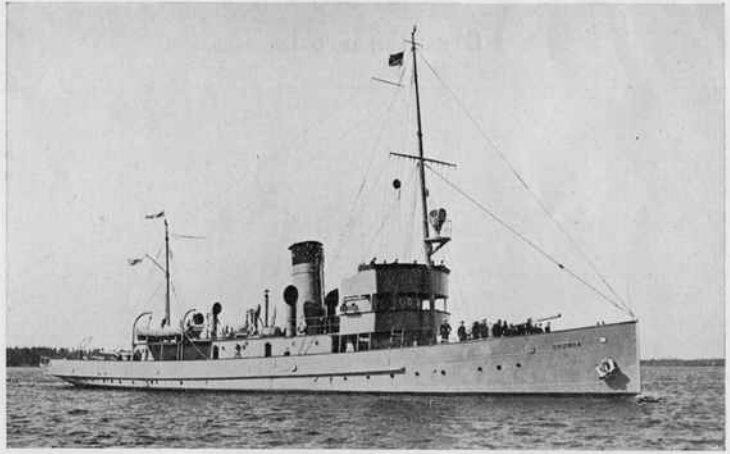
KARJALA. 1934 *Photo.*

KARJALA (ex-Russian *Filin*, 1918), **TURUNMAA** (ex-Russian *Orlan*, 1916). Both built by Crichton A/B Turku. Ordered by late Imperial Russian Government, 1914. Displacement: 342 tons. Complement, 52. Length (*p.p.*) 154 feet (*o.a.*) 164 feet. Beam, 22½ feet. Designed load draught, 9½ feet. Guns: **2**—3 inch, **3** M.G. Machinery: 2 sets triple expansion. Boilers: Normand. Designed I.H.P.: 1,000 = 15 kts. Coal capacity: 60 tons.

Note.—Turunmaa is employed as Cadets' Training Ship.



TURUNMAA. (Note funnel band.) 1932 *Official Photo.*



UUSIMAA. 1934 *Photo.*

UUSIMAA (ex-German *Beo*, ex-*Golub*, 1917), **HÄMEENMAA** (ex-German *Wulf*, ex-*Pingvin*, 1917). Built at Helsinki to order of late Imperial Russian Government. Displacement: 400 tons. Complement, 54. Dimensions: 160 (*p.p.*), 170½ (*o.a.*) × 24½ × 11 feet. Guns: **2**—3·9 inch, **1**—40 mm. AA., **3** M.G. Machinery: 2 sets triple expansion. Designed H.P.: 1,400 = 15 kts. Cylindrical boilers. Coal: 70 tons.

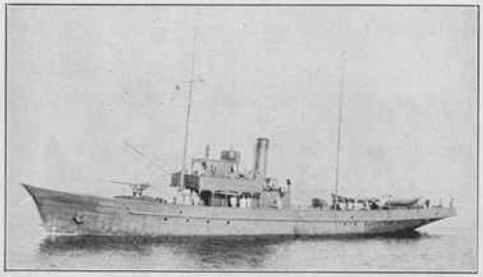
Note.—Sisters to Russian *Pioner* and *Kopchik*.

Minelayers. (*Miinanlaskijat*).

2 Minelayers of 300 tons were launched in May, 1940.

1934 *Photo.*

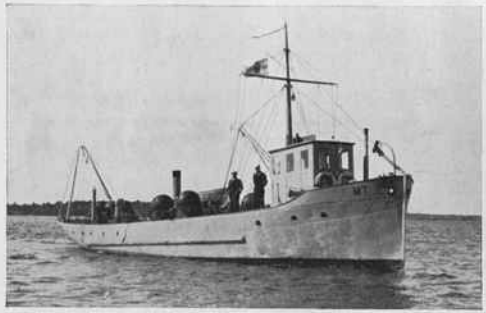
LOUHI (ex-*M.*1, ex-Russian *Voin*, Kolomna, 1917). Displacement: 640 tons. Complement, 46. Dimensions: 151 (*p.p.*) 164 (*o.a.*) × 26½ × 8½ feet. Guns: 2—3 inch, 2—40 mm. AA., 3 M.G. Machinery: 1 set triple expansion. Designed H.P. 1,000 = 11 kts. Coal: 39 tons. Carries 140 mines. (Is also employed as Submarine Depot Ship.)



RAUTU. 1924 *Photo, Commdr. Raninen.*

VILPPULA (ex-*T.*2, 1916) and **RAUTU** (ex-Russian *Murman*, 1917). Displacement: 268 tons. Complement, 35. Dimensions: 147⅜ (*o.a.*) × 20½ × 6½ feet. Guns: 1—3 inch, 2 M.G. Machinery: 2 sets triple expansion. Designed H.P. 450 = 12 kts. Boilers: Yarrow and Schulz respectively. Oil: 19 tons. Can carry 30 mines.

Minelayers.—*continued.*



POMMI (MIINA similar). 1933 *Photo.*

POMMI (ex-*M.* 7, 1916), **MIINA** (ex-*T.* 17, 1917). Built by Porin Konepaja O.Y., Pori. Displacement: 80 tons. Complement, 6. Dimensions: 65¾ × 17 × 4 feet. Machinery: 2 sets of B.M.V. petrol motors. Designed I.H.P. 90 = 9 kts. Fuel: 1¼ ton.

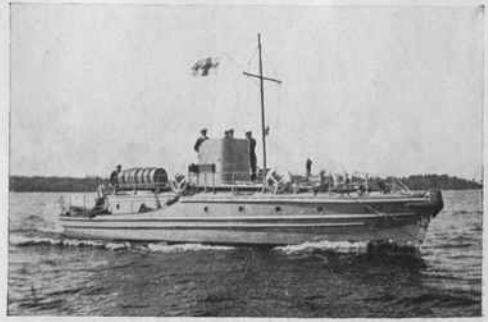
LOIMU. 1934 *Photo.*

LOIMU (ex-*T.* 21, 1915), **LIESKA** (ex-*T.* 16, 1916), **PAUKKU** (ex-*T.* 15, 1916). Built by Porin Konepaja O.Y., Pori. Displacement: 60 tons. Complement, 6. Dimensions: 62½ × 17 × 3¾ feet. Machinery: 2 sets of B.M.V. petrol motors. Designed I.H.P. 60 = 7·5 kts. Fuel: 1¼ ton.

Minesweepers. (*Raivaajat*).

(Of similar appearance to AF 2 on following page.)

AHVEN, KIISKI, MUIKKU, SÄRKI, KUORE, LAHNA (Turun Veneveistämö Yard, 1936–37). Displacement: 17 tons. Complement: 8. Dimensions: 56½ × 12 × 4½ feet. H.P.: 60 = 10·5 kts.



A.37. *(for description, see following column)* 1934.

L

Minesweepers
(continued).

HAUKKA. *Photo* 1934.

A.F. 2 1934 *Photo.*

11 *boats :* **BVA., BVD., A.37, A.38, A.40, A.42, A.43, A.45, B.3, AF.2, HAUKKA.** Displacement: *BVA.*—*A.*45, 9 tons; *B.*3, 18 tons; *AF.*2, 15 tons; *Haukka*, 12 tons. Complement, 6. Dimensions : 53 × 11¼ × 4 feet (first 8). Engines : Petrol motor. Designed I.H.P. : 45–60 = 8–9·5 kts.

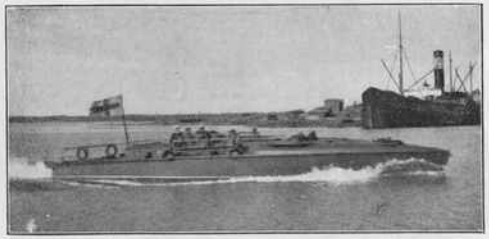
Motor Torpedo Boats.
(Moottoritorpedoveneet.)

5 ordered in March 1940 from Higgins, Ind., Inc., U.S.A.

SYÖKSY. 1937.

4 boats : ***Syöksy*** (ex-*M.T.V.* 4), ***Nuoli*** (ex-*M.T.V.* 5), ***Vinha*** (ex-*M.T.V.* 6), and ***Raju*** (ex-*M.T.V.* 7). *Syöksy* and *Nuoli* built 1928 by Thornycroft, *Vinha* 1929 by Turun Veneveistämö, and *Raju* 1929 by Porvoon Veneveistämö. Displacement : 12 tons. Complement, 7. Dimensions : 55 × 11 × 3¼ feet. Guns : **2** Lewis. Torpedoes **2**—17·7 inch. **2** D.C. I.H.P. 750 = 40 kts.

1 boat : ***Isku*** (ex-*M.T.V.* 3). Built by Porvoon Veneveistämö in 1926. Displacement : 11 tons. Dimensions : 54 × 11 × 3¼ feet. **2** M.G. Torpedoes : **2**—17·7 inch, carried in dropping gears Machinery : 2 sets Fiat motors. I.H.P. 650 = 31 kts.



1924 *Photo, Commdr. Raninen.*

2 boats ***Sisu II.*** (ex-*M.T.V.*1) ***Hurja*** ex-*M.T.V.* 2, (ex-*M.A.S.* 220, 221). Built for Royal Italian Navy by Flli. Orlando 1916 and purchased, 1920. Displacement : 13 tons. Complement, 7. Dimensions : 53 × 9 × 4 feet. Guns : **2** M.G. on high angle mounts. Torpedoes : **2**—17·7 inch (450 mm.). Machinery : 2 sets Isotta Fraschini motors. I.H.P. 500 = 26 kts.

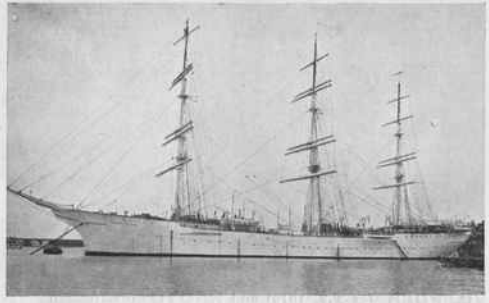
Note.—Presidential yacht *Aura* was torpedoed and sunk by a Soviet submarine, Jan. 14, 1940.

Motor Patrol Boats.
(Vartiomoottoriveneet.)

VMV. 9 1935.

VMV. 1, 2, 5, 6 (1930–31). **VMV. 8–17** (1935). Built in Germany. Displacement : 30 tons. Dimensions : 82 × 13¾ × 3¼ feet. Guns : **1**—20 mm. Machinery : Benzol motors in first 3, semi-Diesel in others. H.P. : 1,220 = 25 kts. Complement 8.

Sail Training Ship.
(Koululaiva.)



1932 *Official Photo.*

SUOMEN JOUTSEN (ex-*Oldenburg*) (St. Nazaire, 1902). Purchased by Finnish Navy in 1931. Displacement : 3,200 tons. Complement, 27 + 60 cadets. Dimensions : 316½ × 40¾ × 16½ feet. Machinery : 2 auxiliary Diesels. H.P. 400 = 6 kts. Fuel : 40 tons.

Salvage Vessel.

(*Pelastuslaiva*).

(*Photo wanted.*)

MURSU (ex-*Stannum*, Kiel, 1902). 615 tons gross. Dimensions: 117¼ (*p.p.*), 131 (*o.a.*) × 41 × 15 feet. I.H.P. 500 = 8 kts. Purchased 1935 for re-equipment as a salvage vessel. Is fitted with special lifting gear for raising sunken submarines.

Submarine Depot Ship and Icebreaker.

1940, *Official.*

SISU (Sandvikens, Sept. 24, 1938). Displacement: 2,000 tons. Dimensions: 194¾ (*w.l.*), 210½ (*o.a.*) × 46½ × 16¾ feet. Guns: 2—3·9 inch, AA. Machinery: 3 sets Atlas Polar Diesels with electric drive. 2 shafts and a bow propeller. H.P.: 4,000 = 16 kts. Complement, 100.

Icebreakers.

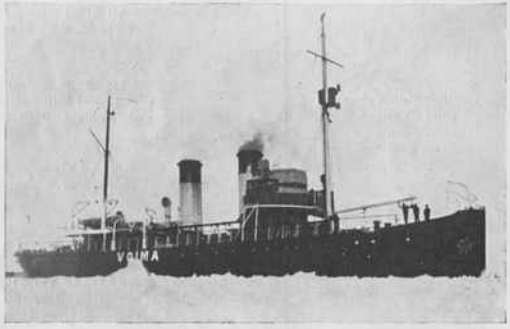
(*Jäänsärkijät*)

1940, *Official.*

OTSO (1936). Displacement: 800 tons. Dimensions: 134½ × 35½ × 15¾ feet. H.P.: 1,800 = 13 kts. Oil fuel: 60 tons.

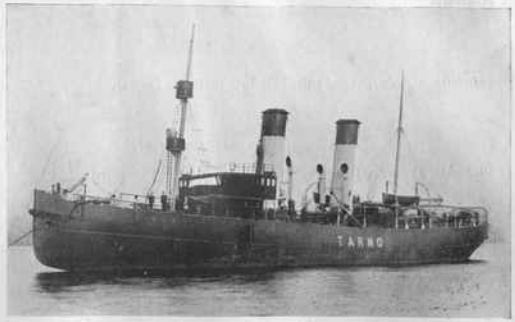
Added 1938, *courtesy Messrs. Smit.*

JÄAKARHU (Smit, Rotterdam, 1926). Displacement: 4,825 tons. Dimensions: 246 × 63 × 21 feet. Machinery: Triple expansion. 3 shafts. I.H.P.: 9,200 = 15 kts. 8 boilers. Oil fuel.



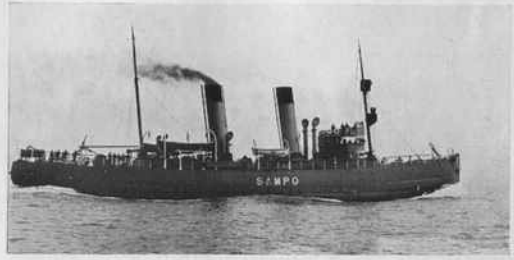
1940, *Official.*

VOIMA (Sandvikens, 1917). Displacement: 2,070 tons. Dimensions: 210¼ × 46½ × 16¾ feet. Machinery: Triple expansion. 1 shaft. I.H.P.: 4,100 = 13.5 kts.



Added 1938, *courtesy Messrs. Armstrong.*

TARMO (ex-*Sampo II*), (Armstrong, 1907). Displacement: 2,300 tons. Dimensions: 210½ × 47 × 18½ feet. Machinery: Triple expansion. I.H.P.: 3,850 = 12 kts.



Added 1938, *courtesy Messrs. Armstrong.*

SAMPO (Armstrong, 1898). Displacement: 1,850 tons. Dimensions: 202 × 43 × 18½ feet. Machinery: Triple expansion. 2 shafts. I.H.P.: 3,000 = 12 kts. Complement, 43.

Illustrated in "Fighting Ships," 1919, p. 375.

APU (ex-*Avance*), (Howaldt, Kiel, 1899). Displacement: 800 tons. Dimensions: 136 (*pp.*), 144 (*o.a.*) × 35½ × 18 feet. I.H.P.: 1,385 = 10 kts.

Illustrated in "Fighting Ships," 1919, p. 375.

MURTAJA (Stockholm, 1890). Displacement: 815 tons. Dimensions: 137½ × 36 × 15½ feet. H.P.: 1,130 = 11 kts.

FRANCE

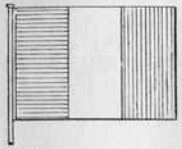
Minister of Marine—Amiral de la Flotte F. Darlan.

Personnel.

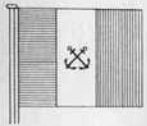
1940. About 85,000 (since reduced by demobilization).

Flags.

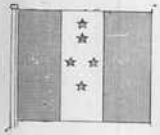
Presidential Flag: Initials of the President worked in Gold letters on central (white) stripe of the Ensign, the letters and their dimensions being chosen by M. le Président.



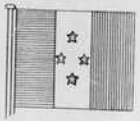
Ensign & Jack (Minister of Marine).



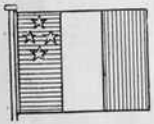
Amiral de la Flotte



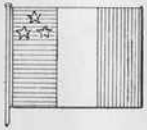
Vice-Amiral Chef d' Etat Major Général ou Inspecteur Général des Forces Maritimes.



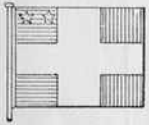
Vice-Amiral d'Escadre



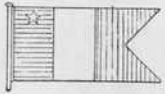
V.A. Comm. en Chef, Préfet Maritime de Regions.



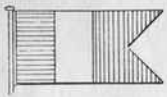
Autres Vice-Amiraux, et Généraux de Division en Mission Officielle, ou pourvus d'un Commandement en Chef.



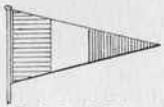
Contre-Amiral et Général de Brigade en Mission Officielle.



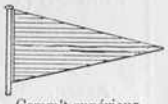
Capitaine de Vaisseau Chef de Division (independante ou en sous ordre).



Capitaine de Vaisseau Comm't un groupe de bâtiments, ou Major-Général commandant la Marine.



Capitaine de Frégate ou de Corvette, Comm't un groupe de bâtiments ou commandant la Marine.

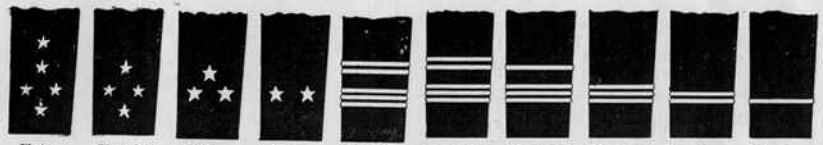


Comm't supérieur temporaire de tout grade.

Rouge *Blanc* *Bleu*

Uniforms.

Note.—The ranks of Amiral de la Flotte, Amiral and Vice-Amiral d' Escadre were instituted in 1939.



(Gold stripe and 2 light blue patches

V.A. Chief of Staff.	V.A. in Command of Forces.	Vice-Amiral.	Contre-Amiral.	Capitaine de vaisseau.*	Capitaine de frégate.†	Capitaine de corvette.	Lieutenant de vaisseau.	Enseigne.	Enseigne 2e classe.	Aspirant
Corresponding to British		*Vice-Ad.*	*Rear-Ad.*	*Captain.*	*Commander.*	*Lieut.-Comm'der.*	*Lieut.*	*Lieut.* (junior.)	*Sub-Lieut.*	*Midshipman*

*Capitaine de Vaisseau, Chef de Division, has one star above the stripes.

†Only three of the Capitaine de frégate's stripes are gold: the second and fourth are silver.

Epaulettes with parade uniform are of the usual sort, *except* that—

A Vice-Admiral's epaulettes have the usual anchor and 3 stars.

A Rear-Admiral's " " " " 2 "

Caps are similar to British Navy in shape but badge differs, being more like Italian and there are stripes right round corresponding to rank. The cocked hat carries the tri-colour.

Torpedoes. (Details official).

Whitehead pattern, made at Toulon Torpedo Factory; also at St. Tropez, where Whitehead marks are built by the Société Française de Torpilles Whitehead.

Date.	French Designation.	Diameter.	Length.	Charge.	Pressure in chamber.	*Maximum* range.
		inches.	feet. ins.	lbs.	lbs. per sq. in.	metres
1919	55 c/m (D)	21·7	27	551	2420	15,000
1912	45 c/m	18	22 2	317	2420	8000
1912	40 c/m	15·7				

Notes.—All fitted with gyros. There are also 1923 and 1924 models of the *55 c/m* torpedo, with ranges up to 20,000 metres.

Mines.

Present types understood to include mainly 120 and 200 kg. types for laying by S/M; 360 kilo Sautter-Harlé spherical and 700-kilo Breguet spherical types. Paravanes British marks.

Catapults.

Of compressed air type in all ships prior to *Algérie*. In that ship and all of later date explosive propellant is used.

General Notes.

Colour of Ships: *Surface ships.*—Light grey (darker for Atlantic ships.)
Submarines.—Sea green or black.

Effective Life of Ships: Fixed in 1936 as—Battleships, 26 years; Aircraft Carriers, 20 years; Cruisers, 20 years; Torpedo Craft, 16 years; Submarines, 13 years. All reckoned from date of first commissioning for trials.

Washington Treaty standard has been adopted for regulation of displacements.

Mercantile Marine.

(From "Lloyd's Register." 1939 figures.)
1,282 vessels of 2,952,975 gross tonnage.

NAVAL ORDNANCE.

(There are also a 15 inch (*Richelieu* class), 1932–33 models of 5·5, 5·1 and 3·9 inch, and a 3 inch AA. of 35 cal.)

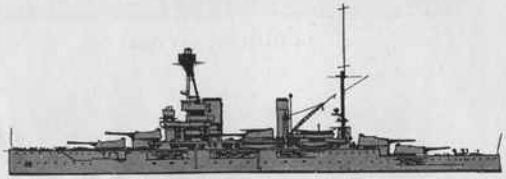
Calibres (inches)	13·4	13	12	8	6·1	6	5·5			5·1		3·9	3·5	3	1·5
Calibres (mm.)	340	330	305	203	155	152	138			130		100	90	75	37
Modèle	1912	1933	1906–10	1924	1920	1930	1929	1923	1910	1924	1919	1917	1926	1924	1925
Longueur (en calibres)	45	52	45	50	50	55	50	40	55	40	40	45	50	50	50
Poids du canon (Kgs.)	66,280	..	54,020	20,716	8530	8128	4114	4113	5300	3875	4392	1565	1600	1095	158
Poids du projectile (Kgs.)	554	540	432	123	56	54	40	40	39	32	32	14	9·5	6	0·75
Poids de la charge (Kgs.)	151	..	126	47	19·6	17	..	9	11	8	8	4	3	2	0·25
Pression Kg./cm.	2800	..	2400	2750	3050	3200	..	2500	2500	2420	2420	2300	3200	2560	2400
Vitesse initiale m/sec.	794	1061	783	850	850	870	860	700	830	734	734	720	850	850	850

Battleships

RICHELIEU, JEAN BART.

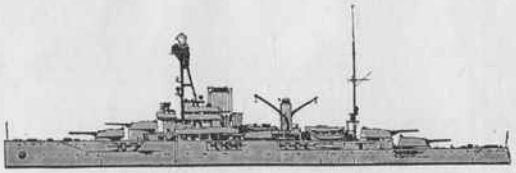
LORRAINE.

DUNKERQUE.

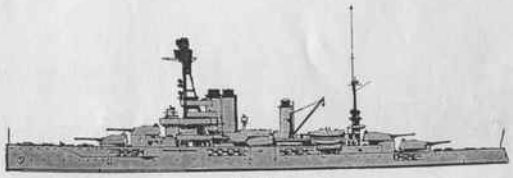


BRETAGNE. PROVENCE.

STRASBOURG.

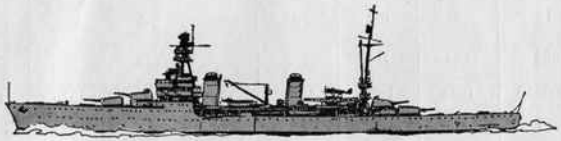


COURBET.
(Cranes should be as in *Paris*, not as shown.)

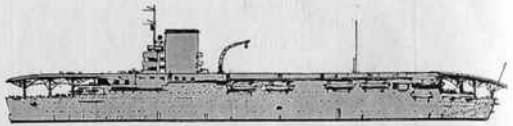


PARIS.

ALGÉRIE.



DUQUESNE, TOURVILLE.



BÉARN. Funnel on starboard side.

SUFFREN.

DUGUAY-TROUIN *class*.

COMMDT. TESTE.

COLBERT.

LA GALISSONNIÈRE *class*.

DUPLEIX.

EMILE BERTIN.

FOCH.

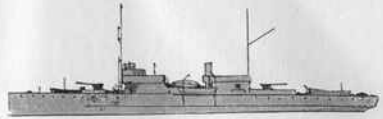
JEANNE D'ARC.

La Pomone *class.*

Simoun *and* Alcyon *classes.*

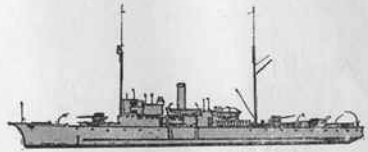
Tigre *class.*

Diligente.



Conquérante.
(Engageante similar, but Yacht Bow).

Le Hardi *class.*



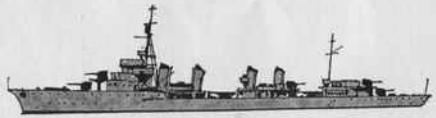
Luronne.

Le Fantasque *class.*
(Now have control tower abaft second funnel).

Guépard *type.*

Somme. Yser.

Mogador.
(Volta has forefunnel top similar to after funnel).



Cassard *type.*
(Stern should appear as in *Guépard*, above.)

Suippe. Ancre.

VILLE D'YS.

MARNE.

GRANIT *class.*

AMIRAL MOUCHEZ.

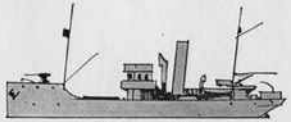
AILETTE.

DEDAIGNEUSE *type.*

QUENTIN ROOSEVELT.

ELAN *class.*

YPRES *type.*

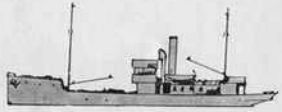


FAUVETTE II.
PASSEREAU II.

CH 1—4.

ARRAS *type.*

BOUGAINVILLE *class.*



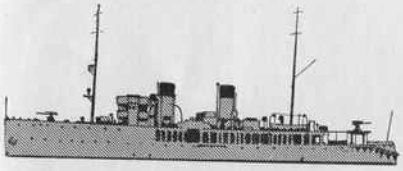
ASTROLABE *class.*

CH 106—115.

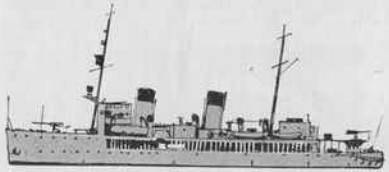
DUBOUEDIEU, ENSEIGNE HENRY

LAPÉROUSE.

LE GLADIATEUR.



CASTOR.



POLLUX.

JULES VERNE.

SURCOUF.

SAPHIR *class.*

PASCAL *type.*
(REDOUTABLE, VENGEUR, as part sketch.)

REQUIN *class.*

SIRÈNE *group.*

CIRCÉ *group.*

ARIANE *group.*

DIANE *class.* (A).

DIANE *class.* (B).

(Richelieu Class—4 Ships.)

RICHELIEU (Jan. 17, 1939), JEAN BART (March 6, 1940), CLEMENCEAU, GASCOGNE

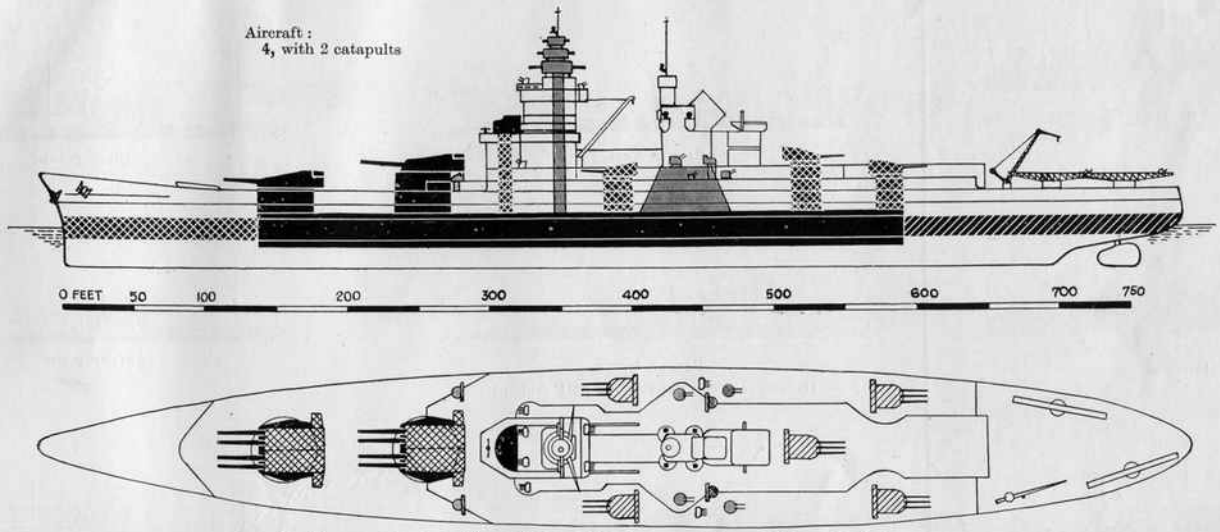
Displacement: 35,000 tons (40,900 tons *full load*). Complement: 1,670.

Length: 794 feet. Beam, 108¼ feet. Draught, 26½ feet (*mean*)

Guns:
8—15 inch
15—6 inch
12—37 mm. AA.
24—13 mm. AA.

Armour:
9"—16" Belt
8" Deck (upper and lower combined)
(Total weight of armour, 15,000 tons; of machinery, 3,000 tons.)

Aircraft:
4, with 2 catapults



Machinery: Geared turbines. S.H.P.: 155,000 = over 30 kts. Boilers: 6 Indret.

General Notes.—These ships were designed to form a homogeneous squadron with the *Dunkerque* and *Strasbourg*. Percentage of displacement devoted to armour is higher even than in those two ships. *Jean Bart* built in Loire yard, but construction shared by Penho t concern. *Richelieu* and *J. Bart* were both built in dry docks, the former ship's cost exceeding 2,000,000,000 francs.

Programme

	Name	*Builder*	*Machinery*	*Laid down*	*Completed*
1935	*Richelieu*	Brest	Loire	22/10/35	April 1940
	Jean Bart	Penhoët / Loire	Penhoët	1/1/37	
1938	*Clemenceau*	Brest		17/1/39	
	Gascogne	Penhoët / Loire		(See Notes)	

Special Notes.

Richelieu was disabled by depth charges exploded against her hull and was afterwards bombed on July 8, 1940, at Dakar. *Jean Bart* is lying at Casablanca in an incomplete state. Hull of *Clemenceau* is understood to have been wrecked by high explosive charges before evacuation of Brest. *Gascogne* does not appear to have been laid down.

STRASBOURG. 1938, *Official.*

DUNKERQUE. 1937, *R. Perkins.*

STRASBOURG. 1938, *courtesy M. Henri Le Masson.*

(Particulars of these ships will be found on following page.)

To distinguish.—Bridge details differ.

DUNKERQUE. 1938, *Official.*

DUNKERQUE. 1937, *R. Perkins.*

(DUNKERQUE CLASS—2 SHIPS)

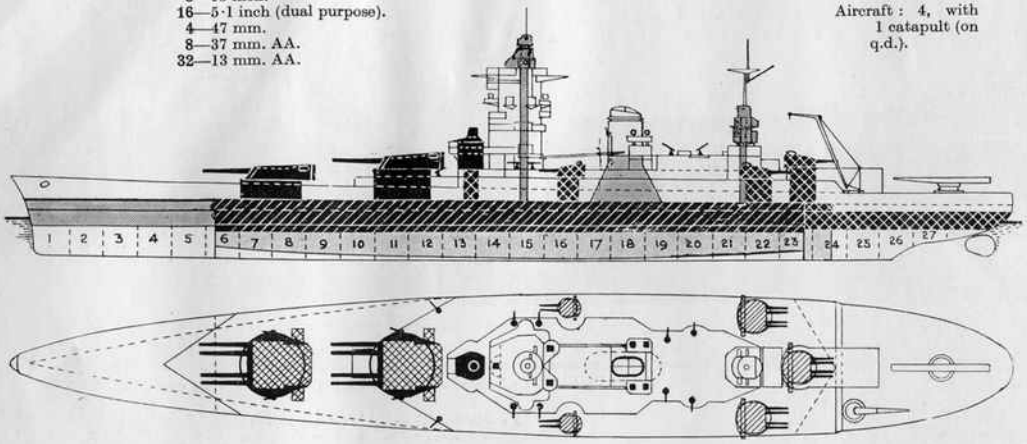
DUNKERQUE (Oct. 2, 1935). **STRASBOURG** (Dec. 12, 1936).

Standard Displacement, 26,500 tons. Complement: 1,431.

Dimensions: Length (*w.l.*) 686; (*o.a.*) 702 feet. Beam: 101¾ feet. Draught: 28 feet (*mean*).

Guns:
8—13 inch.
16—5·1 inch (dual purpose).
4—47 mm.
8—37 mm. AA.
32—13 mm. AA.

Aircraft: 4, with 1 catapult (on q.d.).



Special Notes.

Dunkerque was heavily shelled, set on fire and beached at Mers-el-Kebir on July 3, 1940; and on July 6 she was bombed to complete her disablement. *Strasbourg* was torpedoed by a plane of the Fleet Air Arm on July 3, 1940, but was able to proceed to Toulon.

Armour:
14″ C.T.
14″ Turrets.
9″—11″ Side (at w.l.).
7″ do. (at main deck).
1½″ Longitudinal Torpedo Bulkhead.
Protective Decks:
5″ Upper.
2″ Lower.
(Total weight of armour, *over* 10,000 tons.)

(*Other illustrations on preceding page.*)

Machinery: Parsons Geared Turbines. S.H.P.: 100,000 = 29·5 kts. (trials, 136,900 = 31·5). Radius: 7500 miles at 15 kts. 6 Indret boilers.

General Notes.—These two ships are to replace the *France* (lost in 1922) and the *Océan*. Cost approximately Frcs. 700,000,000 each. Modelled on the *Nelson*, the quadruple turrets were finally adopted after a variety of other gun dispositions had been considered, this grouping having been selected for the pre-War ships of the *Normandie* and *Tourville* classes. The turrets are widely separated to localise the effects of shell fire and reduce blast on the tower when trained abaft the beam. Bridge structure is also modelled on that of *Nelson*. It includes a lift in its interior. The percentage of displacement devoted to protection is higher than in any previous capital ship. A feature which does not show in illustrations is the extraordinary height between decks.

Dunkerque was built in dry dock. Being too long for the dock, the stem piece was constructed separately and attached to hull after floating out.
The construction of *Strasbourg*, although nominally by Penhoët, was shared by Ch. Loire.

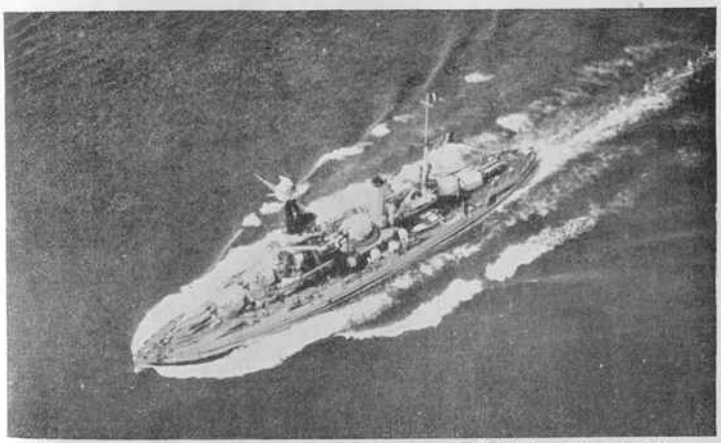
Gunnery Notes.—13 inch guns fire projectiles of 1,200 lbs. weight. Rate of fire 3 rounds a minute. All-round loading position. Elevation 35°. 5·1 inch guns can fire with extreme elevation and are said to have an average rate of fire of 10 rounds per minute and a range of 11,000 yards when so discharged.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*
Dunkerque	Brest	Loire	26/12/32	*April* 1937
Strasbourg	Penhoët	Penhoët	25/11/34	*Dec.* 1938

Distinctive features.—*Dunkerque* has 2 white bands around funnel, *Strasbourg* only 1 band.

DUNKERQUE. 1937, *R. Perkins.*

PROVENCE. 1936, *Courtesy M. Henri Le Masson.*



PROVENCE 1935, *Courtesy of Mons. H. Le Masson.*

Special Notes.

Provence was heavily shelled at Mers-el-Kebir on July 3, 1940, and so severely damaged that she may be regarded as useless for fighting purposes. *Bretagne* capsized on same occasion and is probably a total loss.

General Notes.—Provence and *Lorraine* belong to 1912 programme, one being a replace ship for the *Liberté*, blown up September, 1911. Estimated cost, £2,908,000 per ship = £126 per ton. In 1919–20 tripod foremasts and directors were installed. Both converted to partial oil burning, 1927–30. In 1932–35 they were extensively refitted, being given new 13·4 inch guns (originally ordered for *Normandie* class), additional AA. and machine guns, enhanced protection, and small-tube boilers, burning oil, and subsequently made 20 kts. continuously at sea.

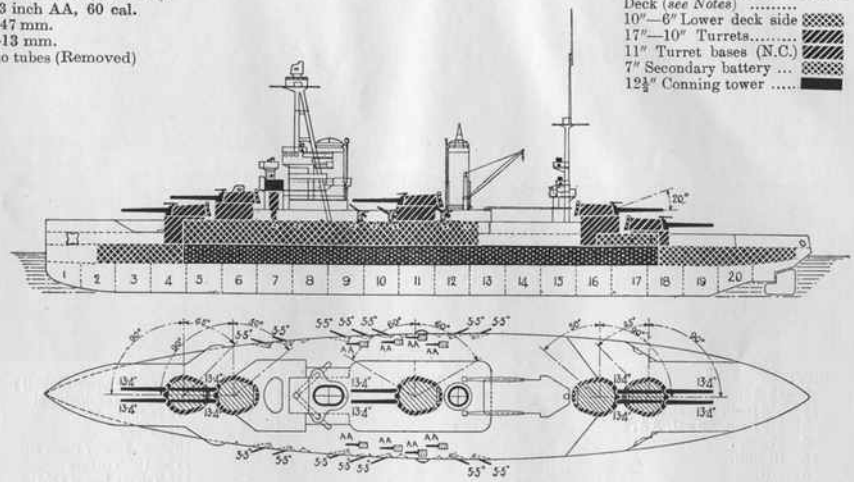
PROVENCE (April 20, 1913).

Standard displacement, 22,189 tons. Complement, 1,133 (+ 57 as Flagship).

Length (*waterline*), 541½ feet, *over all*, 544½ feet. Beam, 88½ feet. *Maximum* draught, 32 feet.

Guns:
10—13·4 inch, 45 cal.
14—5·5 inch, 55 cal. (M.'10).
8—3 inch AA, 60 cal.
7—47 mm.
16—13 mm.
Torpedo tubes (Removed)

Armour (chromo-nickel):
10¾″ Belt (amidships) ...
7″ Belt (ends) .....
Deck (*see Notes*) .....
10″—6″ Lower deck side
17″—10″ Turrets.....
11″ Turret bases (N.C.)
7″ Secondary battery ...
12¾″ Conning tower .....



Machinery: Parsons turbine. 4 shafts. Boilers: Indret. Designed H.P.: 29,000 = 20 kts. (since increased). Oil fuel: 2,600 tons. Radius at 10 kts., over 7,000 miles.

**Gunnery Notes.*—Carry 100 rounds per gun for 13·4 inch and 275 per gun for the 5·5 inch. Janney electro-hydraulic mountings to big guns. Special cooling for magazines - temperature 77° Fahr. Magazines can be completely flooded inside ten minutes. Height of guns above l.w.l.: 1st turret, 30½ feet; 2nd, 37½ feet; 3rd, 33½ feet; 4th, 28½ feet; 5th, 21½ feet. Arcs of training: Nos. 1 and 5, 270°; Nos. 2 & 4, 280°; No. 3, 120° either beam. Arcs of secondary guns: 120°. Big gun elevation increased from 18° to 23°: *max.* range is 23,000 metres. *Lorraine* has had turret removed amidships to make room for catapult.

**Armour Notes.*—Turrets of maximum thickness at ports, instead of uniform thickness as in *Courbet* type. According to the 1917 Edition of "Flottes de Combat," the barbette shields are not of uniform design. Those for the end barbettes are 13·4″ thick, for the super-firing barbettes 9½″ thick and for the central barbette 15½″ thick. The double bottom is carried to the under side of protective deck. Main belt is 15½ feet wide, 5 7/8 feet below and 7½ above l.w.l. Battery 197 feet long with 7 in. bulkheads. Protective decks: lower 2″ slopes, 1½″ flat. Upper, 1½″ flat on top of belt.

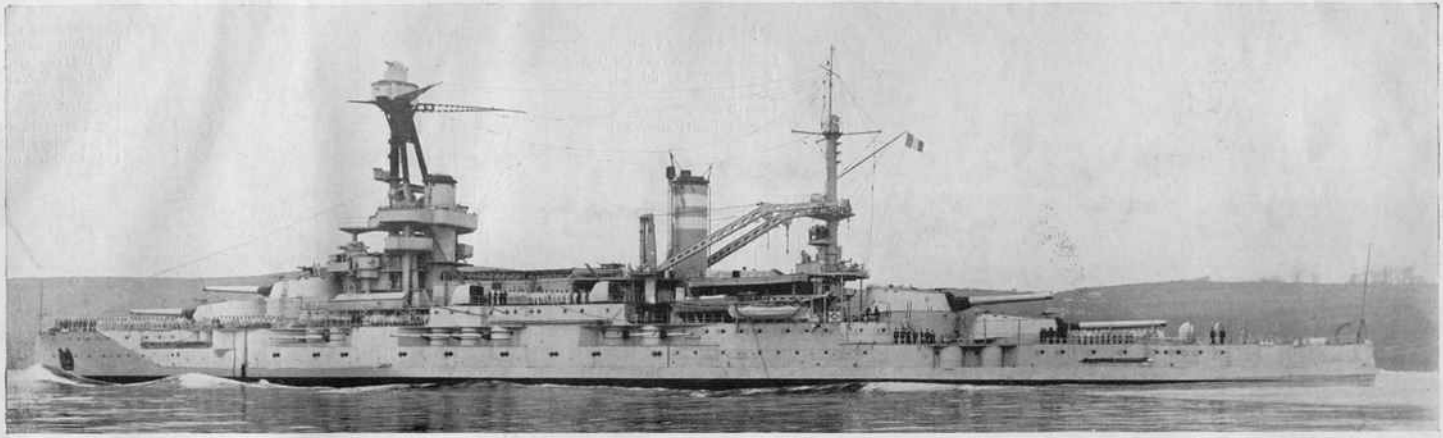
**Engineering Notes.*—Is now converted to oil fuel. 6 new Indret small tube type now supply turbines with steam, giving a large reserve of power beyond the designed figure.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Turbines*	*Boilers*	*Best recent speed*
Lorraine	Penhoët	Penhoët	Nov. '12	July '16	21·4 kts.	Parsons	Indret	22
Provence	Lorient	La Seyne	June '12	June '15		Parsons		20·5

*Unofficial.

LORRAINE (September 30, 1913).

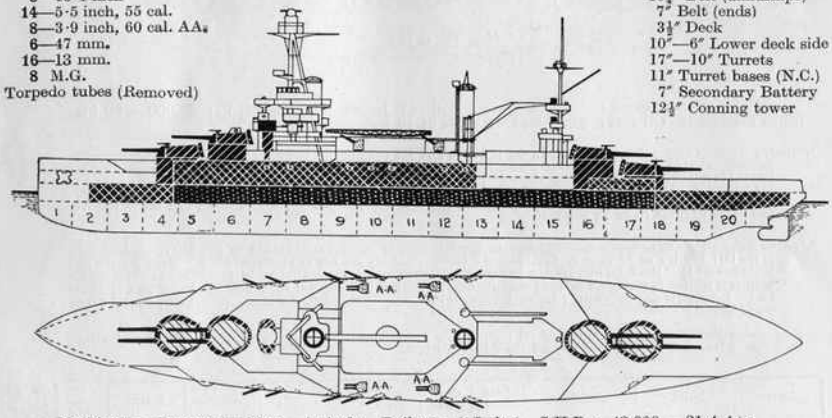
Standard displacement: 22,189 tons. Complement, 1,133 (+57 as Flagship).
Length (*w.l.*) 541½ feet, (*o.a.*) 544½ feet. Beam, 88½ feet. *Max.* draught, 32 feet.



(Now has 1 black band on after funnel.) 1936, *Official.*

Guns:
8—13·4 inch
14—5·5 inch, 55 cal.
8—3·9 inch, 60 cal. AA.
6—47 mm.
16—13 mm.
8 M.G.
Torpedo tubes (Removed)

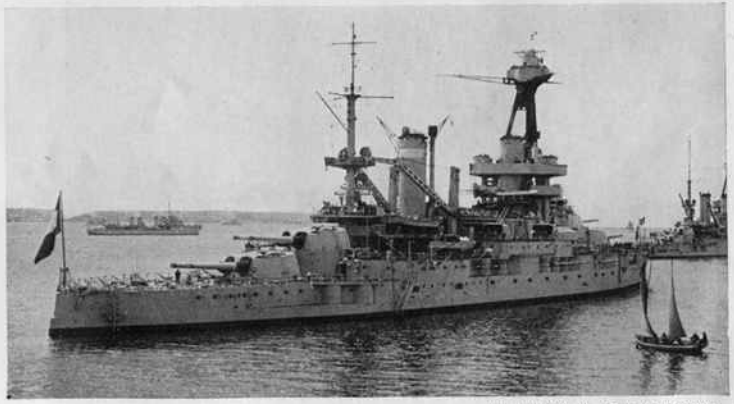
Aircraft: 4



Armour (Chromo-nickel):
10¾″ Belt (amidships)
7″ Belt (ends)
3½″ Deck
10²—6″ Lower deck side
17″—10″ Turrets
11″ Turret bases (N.C.)
7″ Secondary Battery
12½″ Conning tower

Machinery: Parsons turbines. 4 shafts. Boilers: 6 Indret. S.H.P.: 43,000 = 21·4 kts. (trials with new boilers). Oil fuel: 2,600 tons.

General Notes.—*Lorraine* was extensively reconstructed in 1934–35, centre turret being removed to make room for aircraft and catapult. In July 1940 she was demilitarised and laid up at Alexandria. For other particulars, vide sister ship *Provence*, on preceding page.



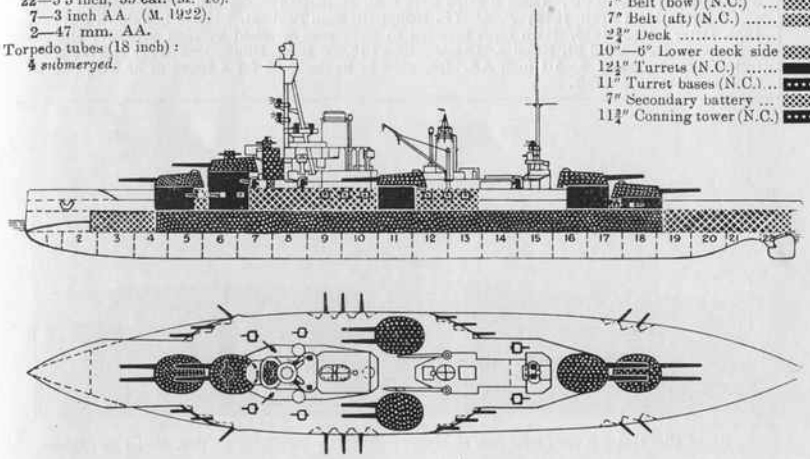
1951, *courtesy M. Henri Le Masson.*

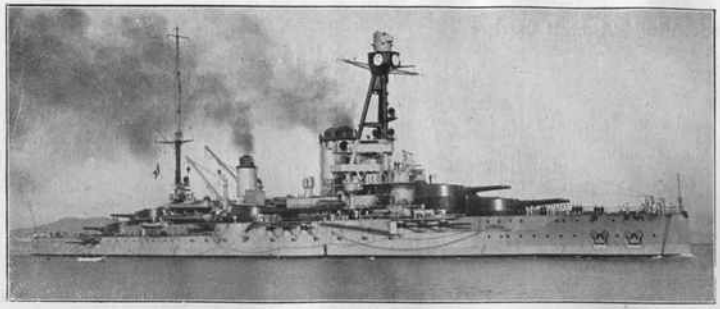
COURBET (Sept. 23, 1911), **PARIS** (Sept. 28, 1912).

Standard displacement, 22,189 tons. *Full load*, 25,850 tons. Complement, 1108.
Length (*pp.*) 541 feet, (*o. a.*) 551 feet. Beam, 92½ feet. *Maximum* draught, 32½ feet.

Guns (M. '06—10):
12—12 inch, 45 cal.
22—5·5 inch, 55 cal. (M. '10).
7—3 inch AA. (M. 1922).
2—47 mm. AA.
Torpedo tubes (18 inch):
4 *submerged*.

Armour: (Chromo-nickel):
10¾ Belt (amidships).....
7" Belt (bow) (N.C.) ...
7" Belt (aft) (N.C.) .....
2¾" Deck .....
10"—6" Lower deck side
12½" Turrets (N.C.) .....
11" Turret bases (N.C.)...
7" Secondary battery ...
11¾" Conning tower (N.C.)





PARIS. (Observe 2 funnels forward and bridgework.) 1929 *Photo, M. Bar, Toulon.*

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials Full power*	*Boilers*	*Best recent speed*
Courbet	Lorient	St. N'z're (Ch. de l'Atlantique)	Sept., '10	Sept. '13	=20·81	Belleville & small tube in each	16
Paris	La Seyne	F.&C. de la Méd	Nov., '11	Aug. '14	35,610=21·6		

General Notes.—Designed by M. Lyasse. Construction very fine and highly finished in details. Average cost about £2,475,000. *France*, of this class, foundered in Quiberon Bay, Aug., 1922. All this class have been reconstructed, 1928–1929. *Courbet* has been completely re-boilered at La Seyne (1929) with small tube boilers (originally ordered for *Normandie* class), and is now gunnery training-ship. *Paris* is attached to Torpedo School for sea training. *Océan*, of this type, has been demilitarised for training purposes. These two ships were to have been removed from effective list on completion of *Richelieu* and *Jean Bart*. Since June, 1940, they have been in British ports.

Machinery: Parsons turbine. 4 shafts. 24 Boilers: see Notes. H.P. 43,000 = 20 kts after refit. Coal: *normal*, 906 tons; *maximum*, 2700 tons; also 310 tons oil (two boiler rooms are fitted for oil burning). *Endurance, 2700 at 18¾ kts.

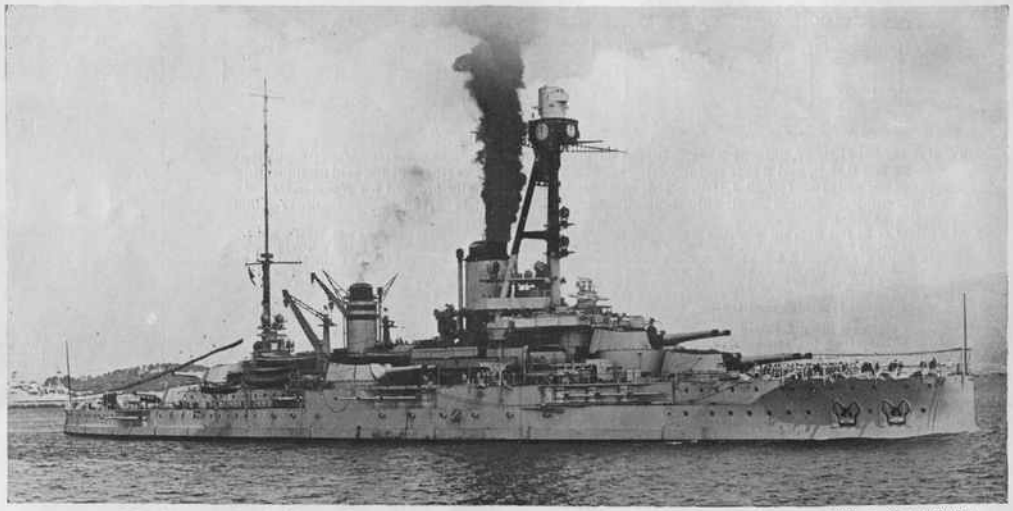
Armour Notes.—Belt, 13½ feet wide; 7¾ feet of it above water, 5½ feet of it below. For about 325 feet it is 10¾". Upper belt, 7" thick forms redoubt for secondary battery. The 4—5·5 inch aft. are in casemates. Prot. decks: 2¾" curved from lower edge of belt to l.w.l. level. Above that a flat 1¾" deck from end to end on top of main belt. Above again is a 1½" splinter deck against aerial attack. Conning tower is in three stories. 10¾" communication tube. Two armoured fire control stations on top.

**Gunnery Notes*.—Amidship 12 inch 180°, the centre line turrets 270° each. The 5·5 inch 120°. Elevation of guns reported increased to give range of 24,000 metres. Height of guns above water: Turrets (1) 30½ feet, (2) 37¾ (amidships) 25 feet, (5) 28½ feet, (6) 21½ feet; upper deck battery, 5·5 inch, 21½ feet; main deck, 5·5 inch aft, 11¾ feet. Ammunition carried: 100 for each 12 in., 275 for each 5·5 inch, 300 for each 3 pdr. Westinghouse refrigerators in magazines. 77°F.

**Torpedo Notes*.—8 searchlights (36 inch), also 2—30 inch. Carries 12 torpedoes and 30 blockade mines.

**Engineering Notes*.—Outer shafts: H.P. turbines; inner, L.P. Condensers (2): 32,076 sq. feet cooling surface. Turbines: 300 r.p.m. Belleville oil fuel system.

* Unofficial.



COURBET (Note AA. guns abreast of foremast.) 1939, *H. Emery, Toulon.*

Special Note.

This ship is at Fort de France, Martinique.

BÉARN (F. & Ch. de la Mediterranée, La Seyne).

Laid down January, 1914, as a battleship of the "*Normandie*" class. Launched April, 1920 construction having been suspended during the war; re-designed as an Aircraft Carrier (*Bâtiment Porte-Avions*), and conversion begun at La Seyne in August, 1923. Finally completed May, 1927.

Standard displacement: 22,146 tons; 25,000 tons *full load*.

Dimensions: 576 (*w.l.*), 560 (*p.p.*) 599 (*o.a.*) feet × 89 feet × 30½ feet (*max.* draught). (Extreme beam is 115½ feet.) Complement: (including air personnel) 875.

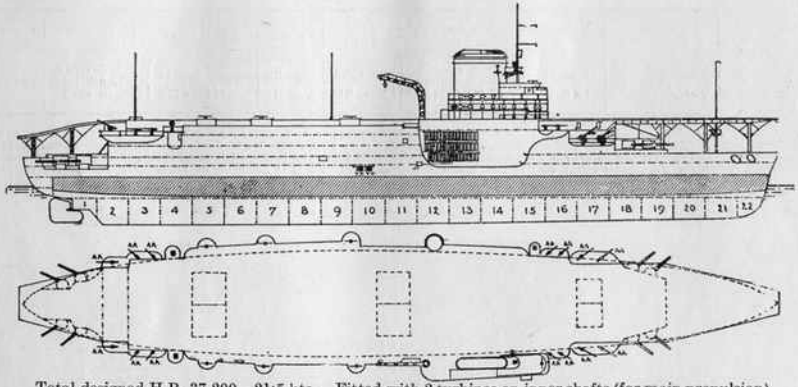
Guns:
8—6·1 inch.
6—3·9 inch. AA.
8— 37 mm. AA.
16 M.G.

Tubes:
4—21·7 inch.

Aircraft: 36 (full complement, 40) (see Notes).

Note to Plan.—3·9 inch are now mounted behind shields, and flight deck is curved downward at bow.

Armour:
1″ Main deck .....
1—2¾″ Lower deck ....
1″ Flight deck .....
3½″ Side armour to 6½ feet below w.l.



Total designed H.P. 37,200=21·5 kts. Fitted with 2 turbines on inner shafts (for main propulsion) = 22,200 S.H.P. and 2 sets reciprocating engines on outer shafts (for cruising and manœuvring purposes only) = 15,000 I.H.P. This machinery was originally ordered for *Normandie*. 12 Du Temple-Normand small tube boilers. 4 screws. Oil fuel: 2,160 tons. Radius: 6,000 miles at 10 kts. Is capable of accommodating over 40 planes.

At a height of 51 feet from the waterline is the flight deck, 600 feet long. An external gangway at a level 3 ft. 9 in. lower allows personnel to move about clear of the flight deck. Underneath the flight deck is the central hangar, in which are housed 5 torpedo planes, 5 reconnaissance planes, and 7 fighter planes (part of the total of 36 carried). Under this hangar again, are workshops for assembling and repairs, and for accommodation of partially equipped planes. The hangar and workshops can be divided into two portions, by means of asbestos curtains.

Hangar and workshops are equipped with overhead transporter cranes for the rapid manipulation of heavy weights, and a special type of derrick (12 tons capacity, 33 feet radius) is fitted on the starboard side of ship, abaft funnel.

Planes are carried up to flight deck by means of three electric lifts, the smallest being 27 × 40 feet and the largest 50 × 50 feet. On a lift, forward, is a charthouse which can be raised above or dropped below flight deck.

Smoke is diluted with cold air to avoid eddies in surrounding atmosphere.

Other items of equipment comprise a special hot water service for filling radiators of seaplanes, and a pneumatic distributing system for conveying their fuel.

Stores carried include 3530 cubic ft. of petrol, under inert gas, and 530 cubic feet of oil.

It has been stated that owing to lack of space on flight deck, only about one fourth of the total number of planes carried can be employed simultaneously.

Trials.—On trial a speed of 21·5 kts. was reached with over 40,000 H.P.

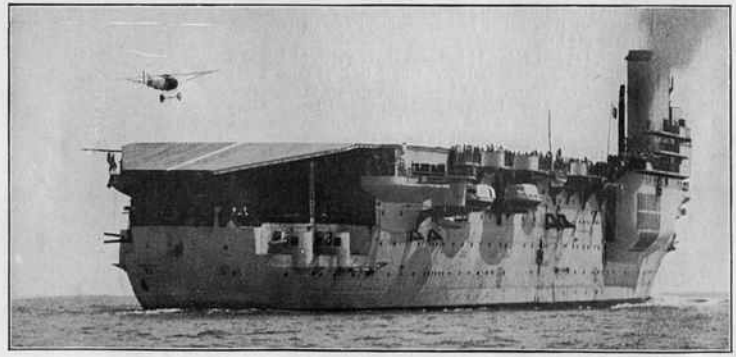
(Refitted completely at La Seyne, 1935.)

New Construction

JOFFRE, PAINLEVÉ. These 2 ships were both authorised under 1938 Programme.

Joffre ordered April, 1938; *Painlevé* in 1939, both from Penhoët. Former laid down Nov. 26, 1938, latter late in 1939. Both hulls believed to have been wrecked by high explosive charges before enemy occupied St. Nazaire. Displacement: 18,000 tons. Dimensions: 774½ × 111½ × — feet. Guns: Probably 8—5·1 inch AA. Reported to be designed for a speed of 32 kts., and to accommodate 40 aircraft.

BÉARN after 1935 refit (note flight deck forward). 1936, *Marius Bar, Toulon.*



BÉARN 1927, *Marius Bar, Toulon.*

ALGÉRIE, (Brest, May 21st, 1932).

Standard Displacement, 10,000 tons. Complement, 616. (629 as flagship.)
Length (*w.l.*) 610¼ feet; (*o.a.*) 617 feet. Beam, 65¾ feet. Draught, 24 feet. (*max.*)

Guns:

8—8 inch (new model).
12—3·9 inch AA.
8—37 mm. AA.
16—13 mm. AA.

Torpedo tubes:

6—21·7 inch (tripled).

Aircraft: 3.

Catapults: 2, of 3-ton type.

Armour:

4½" Vert. Side.
3" Deck.
Internal bulges, with hull thickness of 1½".
(Total weight of Armour 2,000 tons.)

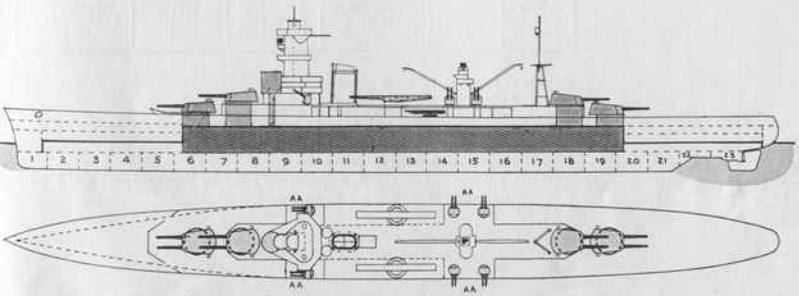
Machinery: 4 Rateau-Chantiers de Bretagne geared Turbines.

S.H.P.: 84,000 = 31 kts. Radius: 5,000 miles at 15 kts.

Boilers: 8 Indret. Fuel: 1,900 tons

Trials: Average of 86,000 = over 32 kts. Max. speed, over 33 kts.

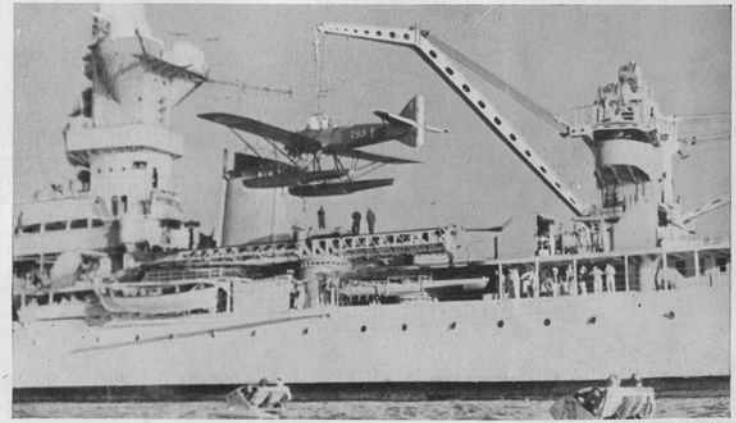
Note to Plan.—There are actually 3 S.L. mounted on tower amidships.



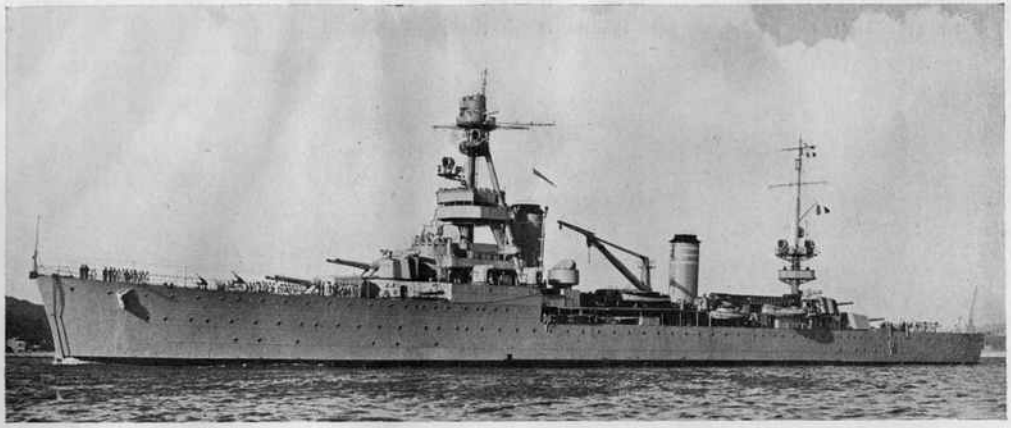
General Notes.—Laid down on March 13th, 1931 at Brest. The design constitutes a distinct departure from the "Tin-clad" vogue, and is more along the lines of a modern edition of the armoured cruiser of thirty years ago, being a reply to the Italian *Zara* type. A novel distribution of internal armour has been introduced giving special anti-aerial and torpedo protection, while the big guns and hoists are adequately armoured instead of being mounted in gunhouses made up of thin plating with unarmoured hoists. Speed has not been reduced as a result of these modifications and equals that of the *Foch* group but with less designed h.p. The 8 inch gun introduced in this ship, firing improved shells, has a greater range than the previous model. She was completed in 1934.

Aircraft Notes.—Unlike those of earlier cruisers, *Algérie's* catapults are of explosive type. Previously compressed air had been the motive power.

1934 *Photo, Capt. M. Adam.*

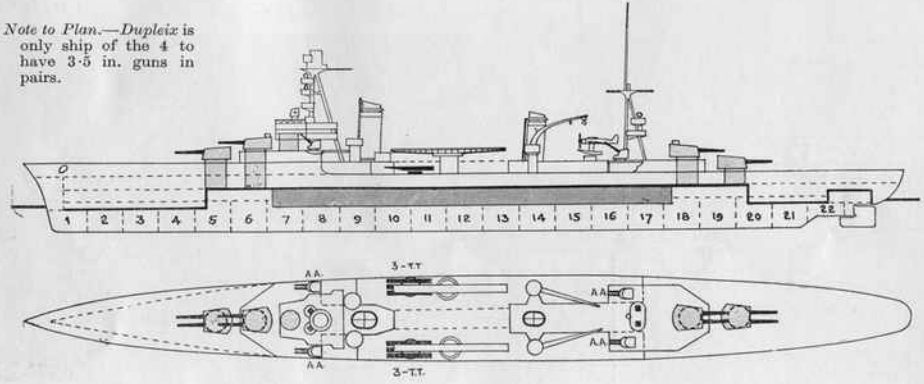


1938, *D. W. Hargreaves, Esq.*



SUFFREN (Note mainmast, bridge, and position of catapults). 1939, *H. Emery, Toulon.*

Note to Plan.—Dupleix is only ship of the 4 to have 3·5 in. guns in pairs.



Appearance Notes.—Foch has different foremast from other ships. *Dupleix*, no fore-topmast. *Colbert* resembles *Dupleix*, but the two platforms on mainmast are not so far apart. *Suffren* has pole mainmast and only one crane (with straight jib) and derrick post, instead of gooseneck cranes as in other ships of class. Bridgework also differs.

SUFFREN CLASS—4 SHIPS.

SUFFREN (May 3rd, 1927). **COLBERT** (April 20th, 1928).
FOCH (April 24th, 1929). **DUPLEIX** (October 9th, 1930).

Standard Displacement, 9,938 tons. Complement, 605.

Length (*p.p.*) 607 feet, (*o.a.*) 637 feet. (*Suffren*, 643; *Dupleix*, 636½ feet), Beam, 63½ feet, (*Suffren*, 65⅝ feet). Draught, 24½ feet (*max.*).

Aircraft: 3. (only 2 in *Suffren*)
Catapults: 2 of 3-ton type.

Guns:
8—8 inch
8—3·5 inch AA.
(*Suffren*, **8**—3 inch AA.)
6—37 m/m. (*Suffren*, 8)
16 M.G.

Torpedo Tubes:
6—21·7 inch (tripled).

Armour:
Has a patch of thin armour over engine and boiler spaces, with 17 W.T. bulkheads carried right up to upper deck. Fitted with internal bulges.

Machinery: 3 Rateau-Chantiers de Bretagne geared turbines. Boilers: 9 Guyot (8 main and 1 auxiliary). Designed: S.H.P. 90,000 = 31·3 to 32·5 kts. 3 screws. Fuel: oil, 1800 tons. Auxiliary equipment driven through 3 Diesels (Renault type) with dynamos. Radius: 5000 miles at 15 kts.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*
Suffren	Brest	A. & C. de	May, 1926	1930	98,300 = 33·7
Colbert	,,	Bretagne	June, 1927	1931	101,800 = 33·9
Foch	,,	in all	June, 1928	1931	119,000 = 34·1
Dupleix	,,		Oct., 1929	1932	

Are able to steam at 29 knots with half-power.

Cost: *Suffren*, 144 million. *Colbert*, 147 million francs.
Foch, 156 million. *Dupleix*, 167 million francs.

General Notes.—Are modified editions of *Tourville* class, but with about two knots speed sacrificed in order to gain better protection. At full speed *Foch* proved very successful, compared with *Lamotte-Picquet*, due to modified bow and stern lines. *Suffren* is demilitarised and laid up at Alexandria.

Gunnery Notes.—Light AA. armaments vary in these ships, as will be gathered from figures given above.

DUPLEIX. 1932 *Photo, Capt. M. Adam.*

DUPLEIX (No fore-topmast and tall mainmast). 1934 *Photo, Marius Bar.*

FOCH (Foremast differs from other ships). 1935, *Ganda.*

(*For particulars of these ships, see preceding page*)

COLBERT (Note position of catapult, bridgework, cranes, and mainmast). 1939, *H. Emery, Toulon.*

(Tourville Class—2 Ships.)

DUQUESNE (Dec. 17th, 1925), **TOURVILLE** (Aug. 24th, 1926). Standard displacement, 10,000 tons (11,900 tons deep load). Complement, 605.
Length (*p.p.*), 607 feet; (*o.a.*), 626⅔ feet; Beam, 62½ feet. Draught, 23 feet (*max*).

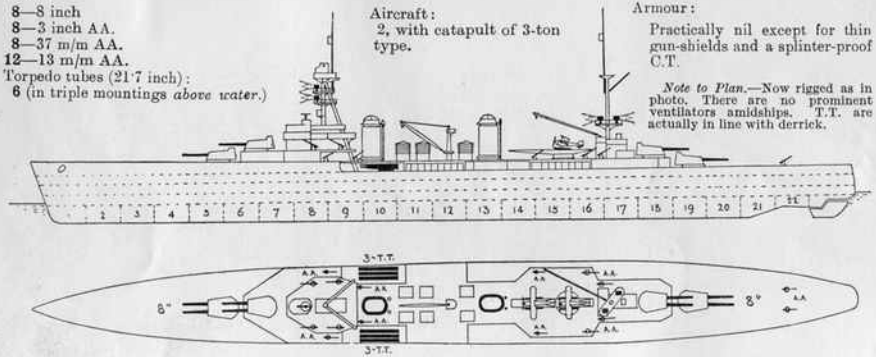
TOURVILLE. 1935, *Ganda.*

Guns:
8—8 inch
8—3 inch AA.
8—37 m/m AA.
12—13 m/m AA.
Torpedo tubes (21·7 inch):
6 (in triple mountings *above water.*)

Aircraft:
2, with catapult of 3-ton type.

Armour:
Practically nil except for thin gun-shields and a splinter-proof C.T.

Note to Plan.—Now rigged as in photo. There are no prominent ventilators amidships. T.T. are actually in line with derrick.



Machinery: 4 Rateau-Chantiers de Bretagne geared turbines. Boilers: 9 Guyot (8 main and 1 auxiliary). Designed S.H.P.: 120,000 = 33 kts. 4 screws. Oil: 1,800 tons. Radius: 5,000 miles at 15 kts.; 700 at full speed.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*
Tourville	Lorient	A. & C. de	14 April, 1925	1928	130,000=36·15
Duquesne	Brest	Bretagne	30 Oct., 1924	1928	135,000=35·3

General Note.—Above ships are practically enlarged copies of *Duguay-Trouin* design, with an improved form of hull and heavier armament. Both are demilitarised and laid up at Alexandria.

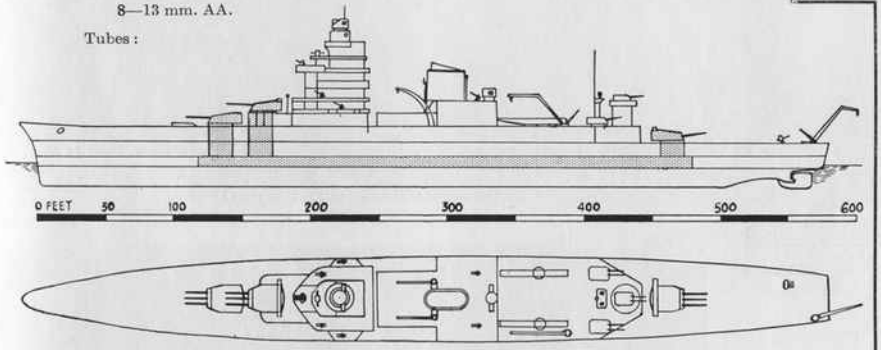
Engineering Notes.—Boiler and engine rooms are arranged alternately, and not in two separate groups, as suggested in plans appearing elsewhere. *Tourville's* trial speed of over 36 kts. was obtained while running on normal displacement. Auxiliaries driven through 3 Diesels (Renault Type) with dynamo.

(De Grasse Class—3 Ships)

(See Note at foot.)

DE GRASSE, CHATEAURENAULT, GUICHEN.

Displacement: 8,000 tons. Complement: 580
Length: Beam: Draught:
Guns: Aircraft: 4. Armour:
9—6 inch. Catapults: 2. Probably similar to *La Galissonnière*.
6—3·5 inch AA.
8—13 mm. AA.
Tubes:



Machinery: Rateau-Chantiers de Bretagne geared turbines. Speed reported as 34 kts.

Special Note.

Hull of *De Grasse* was probably blown up before evacuation of Lorient. Other two ships were to have been begun in 1940, but it is questionable if either will now be built.

Estimates	*Name*	*Builder*	*Machinery*	*Laid down*	*Completed*
1937	De Grasse	Lorient	A. & C. de Bretagne Builders	Nov. 1938	*To be* 1941
1938	Chateaurenault	F. & C. Med.			
1938	Guichen	F. & C. Gironde			

Jean de Vienne. 1937.

La Galissonnière. 1937

(*For particulars of above ships, see following page.*)

(La Galissonnière Class—6 Ships)

La GALISSONNIÈRE (Nov. 17, 1933). JEAN de VIENNE (July 31, 1935).
GLOIRE (Sept. 28, 1935). MARSEILLAISE (July 17, 1935). MONTCALM (Oct. 26, 1935). GEORGES LEYGUES (*ex-Chateaurenault*) (March 24th, 1936).

Displacement: 7,600 tons (9,120 tons *full load*). Complement: 540.

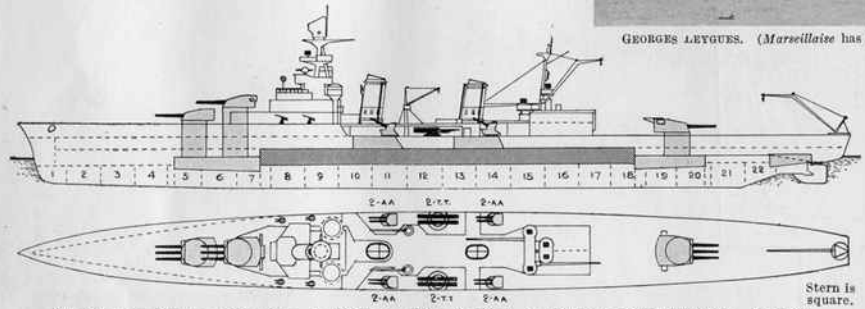
Length: (*pp.*) 548 feet, (*o.a.*) 580¾ feet. } Beam: 57½ feet. } Draught: 17¼ feet (*max.*).

Guns:
9—6 inch
8—3·5 inch AA.
8—13 mm. AA.
Tubes:
4—21·7 inch

Aircraft:
4, with 1 Catapult.

Armour (unofficial):
4¾″—3″ Vert. Side.
2⅜″ Deck
5½″ Turret faces.
2″ Turret sides.
3¾″ C.T.

Note to Plan:—Catapult now mounted on after turret.
Positions of cranes vary.

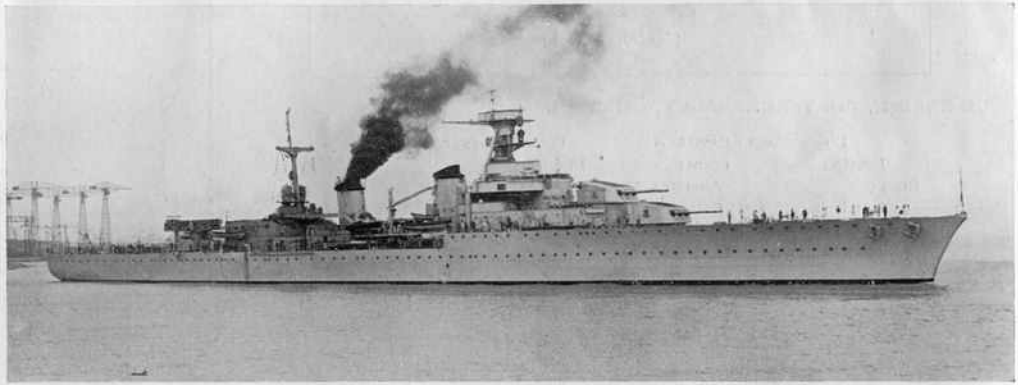


Stern is square.

Machinery: 2 Rateau-Chantiers de Bretagne (first 3 ships) or Parsons geared turbines. S.H.P.: 84,000 = 31 kts. Boilers: 4 Indret small tube. Fuel: 1,500 tons oil. Radius: 6,000 miles at 13 kts.

Programme	*Name*	*Builder*	*Machinery*	*Laid down*	*Completed*
1931	*La Galissonnière*	Brest	Ch. de Bretagne	27.10.31	31.12.35
	Jean de Vienne	Lorient		12.31	15.4.37
1932	*Gloire*	F. C. Gironde	Builders in each case		4.12.37
	Marseillaise	A. C. Loire			25.10.37
	Montcalm	F. C. Med.		1933	4.12.37
	G. Leygues	C. A. St. Nazaire (Penhoët)			4.12.37

General Notes.—The delay in the construction of these ships was in part due to modifications having been introduced into the design, which is based on that of the *Emile Bertin* with additional protection which is said to be capable of resisting 6-inch shell. A feature of the design is the long quarter-deck. The bow flare is angled and not curved. The four later ships differ from *La Galissonnière* and *Jean de Vienne* in minor details. Altogether the design of these cruisers is a remarkably successful one, embodying the maximum advantage to be obtained from their relatively low displacement. Trials: *La Galissonnière* (8 hours) 96,000 = 35·42; *Jean de Vienne* has also exceeded 35 kts.; *Montcalm*, 35·7; *Marseillaise*, 36·1. Sea speed about 30 kts. Fuel consumption reported to be exceptionally low in this class. *Georges Leygues, Gloire and Montcalm* were last reported at Dakar or Casablanca.



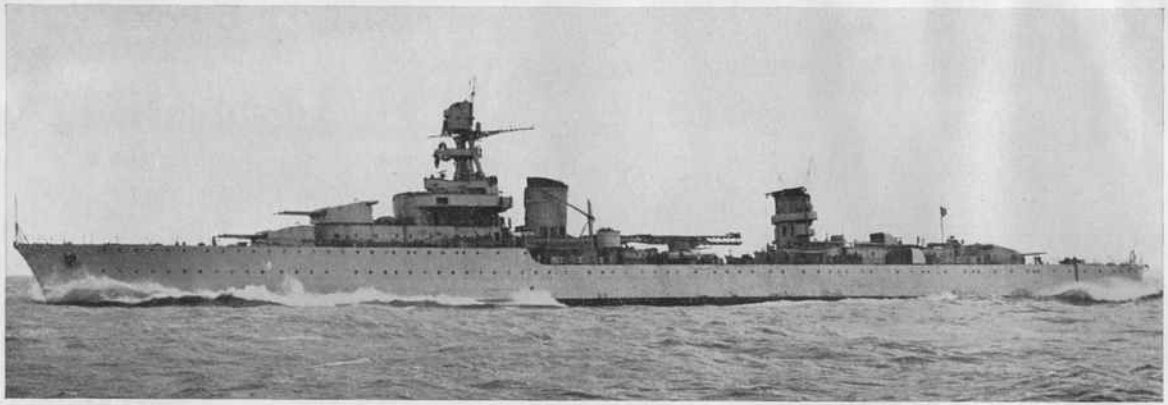
GEORGES LEYGUES. (*Marseillaise* has cranes alongside after funnel.) 1938, *M. Henri Le Masson.*

(Foremasthead details vary in these ships.)

LA GALISSONNIÈRE, showing opening for Hein mat in counter. 1936 *Courtesy M. Le Masson.*

EMILE BERTIN, (Penhoët, St. Nazaire.) (May 9, 1933).

Displacement: 5,886 tons. Complement: 567. Length: (*p.p.*) 548 feet, (*o.a.*) 580¾ feet. Beam: 51¾ feet. Draught: 17¾ feet (*max.*).



1935, *courtesy Mons. H. le Masson.*

(Now has small oval hangar immediately forward of second funnel.)

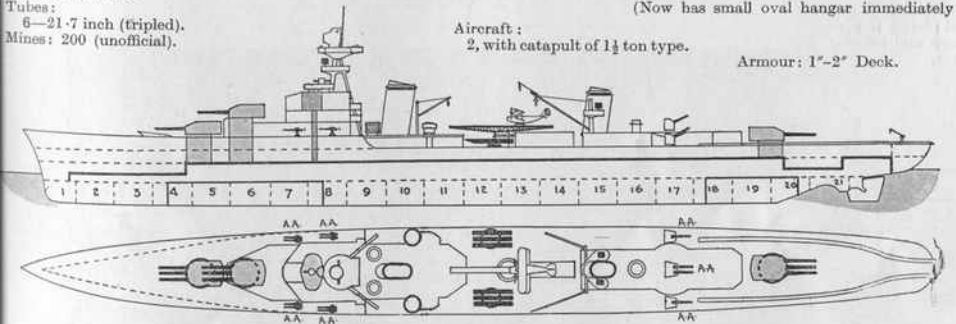
Guns:
9—6 inch.
4—3·5 inch. AA.
8—37 m/m. AA.
8—13 m/m. AA.

Tubes:
6—21·7 inch (tripled).

Mines: 200 (unofficial).

Aircraft:
2, with catapult of 1½ ton type.

Armour: 1″–2″ Deck.



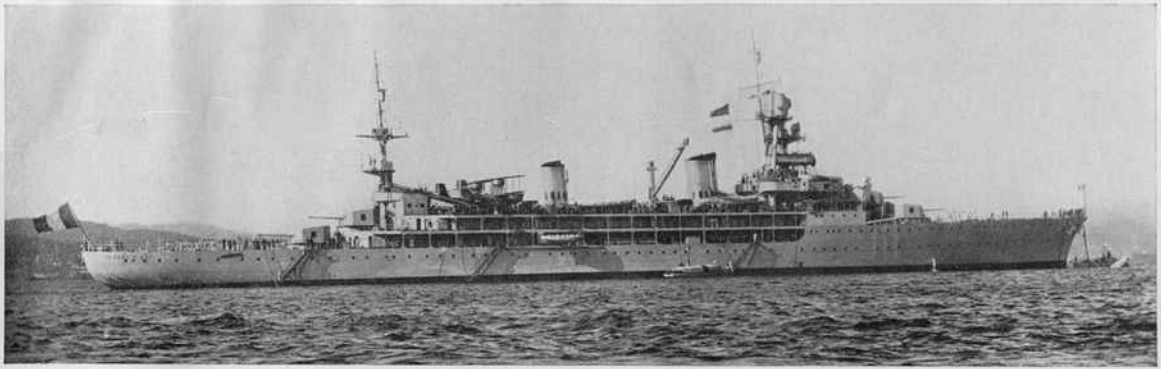
1934 *Photo, Capt M. Adam*

Machinery: Parsons geared Turbines. 4 shafts. S.H.P.: 102,000=34 kts. Boilers: 6 Penhoët.
Oil Fuel: 1,400 tons.

Notes.—Authorised under the 1930 Programme. Laid down 1931. Completed in 1934. The triple mounting makes its first appearance in the French Navy in this ship. Originally intended to be merely an improved *Pluton*, a new design was ultimately evolved, in which cruiser characteristics were in no way subordinated to minelaying considerations. On trials, the ship exceeded expectations, maintaining 37 kts. for an hour in a 13 ft. swell. Maximum power and speed on trials, 123,000 = 39·8 kts. Hull strengthened beneath turrets to permit salvo firing, 1935. Reported to be at Fort de France, Martinique.

JEANNE D'ARC (Penhoët, St. Nazaire.) (Feb. 14th, 1930.)

Standard Displacement: 6,496 tons. Complement: 505.
Length (*p.p.*), 525 feet; (*o.a.*), 557¾ feet. Beam, 57½ feet. Draught, 17⅞ feet (*mean*); 20¾ feet (*max.*).

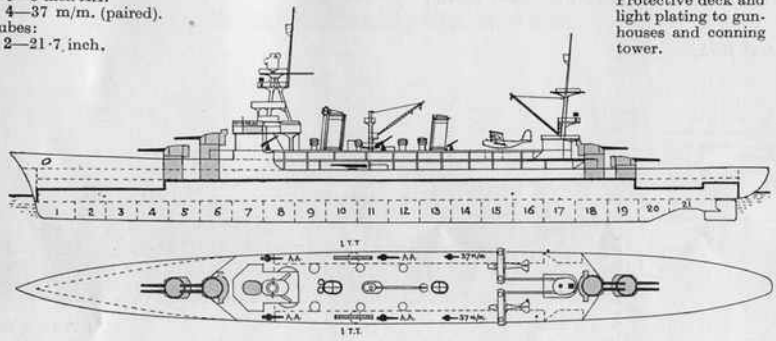


1934 *Photo.*

Guns:
8—6·1 inch.
4—3 inch AA.
4—37 m/m. (paired).
Tubes:
2—21·7 inch.

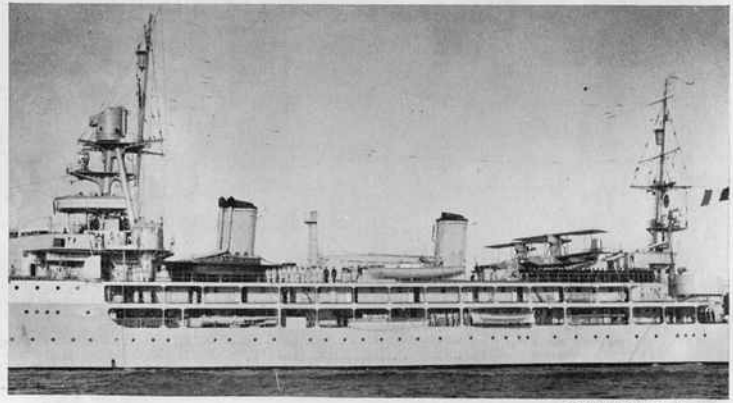
Aircraft:
2 (handled by crane)

Armour: Nil.
Protective deck and light plating to gun-houses and conning tower.



Machinery: Parsons geared turbines. 2 shafts. Designed H.P.: 32,500 = 25 kts. Boilers: 4 Penhoët. Oil: 1,400 tons. Radius: 5,000 miles at cruising speed (14—15 kts.).

General Notes.—Original design provided for 2 catapults, but as completed she is without any. Can accommodate 156 midshipmen and cadets and 20 instructional officers, in addition to ordinary complement. Authorised under 1927 Programme and laid down at Penhoët Yard, St. Nazaire in 1928. Completed in 1931. Last reported at Guadeloupe.
Trials:—3 hours' full power: 39,200 H.P. = 27·03 kts. (*mean*), 27·84 kts. (*max.*).



1937, *Wright & Logan.*

(Duguay-Trouin Class—3 Ships.)

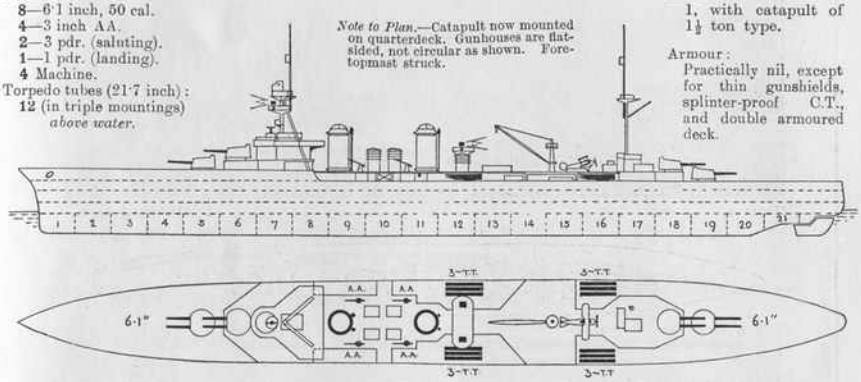
DUQUAY-TROUIN (14th Aug., 1923), LAMOTTE-PICQUET (21st March, 1924), PRIMAUGUET (21st May, 1924).

Standard displacement, 7,249 tons. Normal displacement, 7,880 tons. (*Full load*, 9,350.) Complement, 577.
Length (*p.p.*) 575 feet, (*o.a.*) 594¾ feet. Beam, 57½ feet. Draught, 17¼ feet *mean*; 20¾ feet *maximum* at full load.

Guns:
8—6·1 inch, 50 cal.
4—3 inch AA.
2—3 pdr. (saluting).
1—1 pdr. (landing).
4 Machine.
Torpedo tubes (21·7 inch):
12 (in triple mountings) *above water.*

Aircraft:
1, with catapult of 1½ ton type.

Armour:
Practically nil, except for thin gunshields, splinter-proof C.T., and double armoured deck.


Note to Plan.—Catapult now mounted on quarterdeck. Gunhouses are flat-sided, not circular as shown. Fore-topmast struck.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A.A.
3-T.T.
6·1"

Machinery: 4 Parsons geared turbines. Boilers: 8 Guyot. Designed S.H.P. 102,000 = 33 kts. 4 screws. Oil: 500 tons *normal*, 1500 tons *maximum*. Radius: 880 miles at 33 kts.; 1290 at 30; 3000 at 20; 4500 at 15.

Gunnery Notes.—6·1 inch guns are 1920 model with ballistic powers superior to old marks of 7·6 inch. Range reported to be 28,000 yards, elevation 35°. Reason for adoption of this calibre is said to have been its uniformity with Army type 6·1 inch, simplifying munition supply, more particularly of gas and incendiary shells. Gunhouses are reported to be gas-tight, and to have a special method of ventilation by forced draught.

Engineering Notes.—Trial results tabulated are averages of 6 hours with full complement of fuel and stores. *Maximum* speed for 1 hour, 34·5 kts. All three ships maintained 30 kts. for 24 hours' continuous steaming at half power with full load, and have proved very economical. Heating surface, 13,209 sq. feet.

Torpedo Notes.—24 torpedoes carried (12 in tubes, 12 in magazine). In addition, 4—17·7 inch torpedoes are carried for picket boats.

Name.	*Builder.*	*Machinery.*	*Laid down.*	*Completed.*	*Trials. (6 hours)*	
Duguay-Trouin	Brest	F. & C. de la Méd.	4 Aug., '22	10 Sep. '26	116,235 = 33·6	
Primauguet	Brest	A. & C. de la Loire	10 Aug., '23	1 Oct. '26	116,849 = 33·06	
Lamotte-Picquet	Lorient	C. & A. de St. Nazaire (Penhoët).	17 Jan., '23	1 Sep. '26	115,100 = 33·04	

General Notes.—These ships have shown excellent sea-keeping qualities. *Primauguet* given a big refit at Lorient in 1937. *Duguay-Trouin* is at Alexandria, demilitarised.

Duguay-Trouin. 1939, *H. Emery, Toulon.*

Duguay-Trouin 1939, *H. Emery, Toulon.*

IDENTIFICATION MARKS, FRENCH FLOTILLAS

Torpilleurs: Coloured bands around fore funnel, thus:

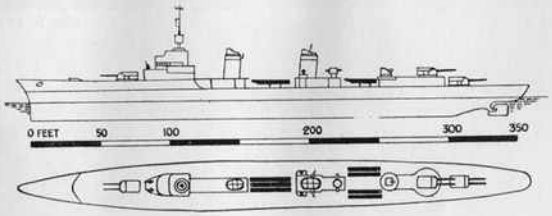
Colour	1 *Band*	2 *Bands*	3 *Bands*
White	1st Divn.	7th Divn.	13th Divn.
Black	2nd ,,	8th ,,	
Yellow	3rd ,,	9th ,,	
Green	4th ,,	10th ,,	
Red	5th ,,	11th ,,	
Blue	6th ,,	12th ,,	

All carry white letter T on either bow, followed by two figures (or three in case of 10/13th Divisions). The first figure (or two figures) refers to number of Division, the last to vessel's rank in the Division.

Contre-Torpilleurs: Same arrangement, but letter X instead of T, and coloured bands around after funnel. In all cases the name, inserted in copper letters in a copper frame at the stern, is on a background painted in a colour corresponding with the funnel band.

6 + 6 Le Hardi class.

(Classed as *Torpilleurs*)



LE HARDI.

2 *A. et C. de la Loire:* ***Le Hardi, Mameluck.***
4 *F. et C. de la Gironde:* ***Epée, Lansquenet, Aventurier, Opiniatre.***
6 *F. et C. de la Méditerranée (La Seyne):* ***Casque, Fleuret, Le Corsaire, Le Flibustier, Intrepide, Téméraire.***

Standard displacement: 1,772 tons. Complement: 175
Dimensions: 333½ × 32½ × 11 feet (*mean*).
Guns: **6**—5·1 inch, **4**—37 mm. AA., **4**—13 mm. AA. Tubes: **7**—21·7 inch.
Machinery: Parsons geared turbines in all except *Fleuret* and 4 Gironde-built ships, which have Rateau-Chantiers de Bretagne. S.H.P.: 58,000 = 37 kts. Radius: 6,000 miles at 15 kts.

Note.—Cost of earlier ships averages Fcs. 84,000,000 each. Very little progress had been made with last 4 ships at time of French surrender.

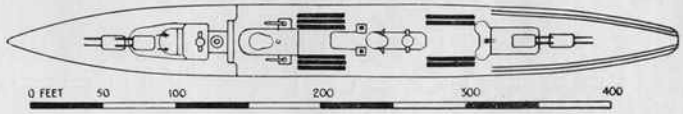
Programme	*Name*	*Laid down*	*Launch*	*Completed*
1932	*Le Hardi*	1936	4/5/38	1939
1935	*Epée*	1936	26/10/38	1940
	Fleuret	1936	27/7/38	1940
1936	*Casque*	1937	24/11/38	1940
	Lansquenet	1937	20/5/39	1940
	Mameluck	1937	18/2/39	1940

Programme	*Name*	*Laid down*	*Launch*	*Completed*
1937	*Le Corsaire*	3/38	14/11/39	
	Le Flibustier	3/38	19/12/39	
1938	*Aventurier*	20/3/40		
	Opiniatre			
	Intrepide			
	Téméraire			

2 + 4 (Authorised) Mogador class.

(Classed as *Contre-Torpilleurs*)

MOGADOR. 1939, *Wright & Logan.*



2 *Lorient:* ***Mogador, Desaix.***
3 *Ch. de Bretagne:* ***Volta, Hoche, Marceau.***
1 *At. et Ch. de France:* ***Kléber***
Displacement: 2,884 tons. (About 3,500 tons full load.) Complement: 238.
Dimensions: 451 × 41 × 14½ feet (*mean*).
Guns: **8**—5·5 inch, **4**—37 mm. AA., **4**—13 mm. AA., **4** D.C.T.
Tubes: **10**—21·7 inch (2 triple mounts and 2 pairs).
Machinery: Rateau-Chantiers de Bretagne geared turbines by Indret in *Mogador* and by A. & C. de Bretagne in *Volta* and *Marceau*; Parsons in others. S.H.P.: 90,000 = 38 kts. Boilers: 6 Indret small tube. Oil fuel: 630 tons.

Gunnery Notes.—5·5 inch are of a new model, semi-automatic, and have a range of 25,000 yards. A rate of fire of 16 rounds a minute can be maintained.

Special Note.

Mogador was reduced to a wreck by heavy shell fire at Mers-el-Kebir on July 3, 1940, and is possibly to be reckoned as a total loss. The 4 last ships of this class will probably never be built.

Programme	*Name*	*Laid down*	*Launch*	*Completed*
1932	*Mogador*	Dec. 1934	9/6/37	1/6/38
1934	*Volta*	Jan. 1935	26/11/36	15/9/38
1938	*Desaix*	1940		
	Hoche			
	Marceau			
	Kléber			

5 Fantasque Class. *1930 Programme.*

LE FANTASQUE. 1936, *favour Mons. H. Le Masson.*

Le Fantasque	(March 15, 1934).	***Le Terrible***	(Nov. 29, 1933).
Le Malin	(Aug. 17, 1933).	***Le Triomphant***	(April 16, 1934).
		L'Indomptable	(Dec. 7, 1933).

Displacement: 2,569 tons (3,230 tons *full load*). Complement: 220.

Dimensions: 411½ (*p.p.*), 434½ (*o.a.*) × 39½ × 14 feet (*mean*).

Guns: **5**—5·5 inch, **4**—37 mm., **4**—13 mm. AA., 4 D.C. throwers. Tubes: **9**—21·7 inch (tripled).

Machinery: 2 sets geared turbines. Parsons in *Le Malin*, *Le Triomphant* and *L'Indomptable*, Rateau-Chantiers de Bretagne in others. S.H.P.: 74,000 = 37 kts. Boilers: 4 small tube. Oil fuel: 650 tons.

Builders: Le Fantasque, Lorient; *Le Malin*, *L'Indomptable*, F. Ch. de la Mediterranée, La Seyne; *Le Terrible*, Ch. Nav. Français, Blainville; *Le Triomphant*, Ch. de France, Dunkerque.

Notes.—On trials, *Le Terrible* is reported to have reached record speed of 45·25 kts. with about 100,000 H.P. average for one hour being 44·9 with 94,200 H.P. On her 8 hours' trial she averaged 43 kts. All the ships of this class exceeded 43 kts. and are excellent sea boats, able to maintain 37 kts. continuously. *L'Audacieux* sunk in action with British forces at Dakar, Sept. 23rd, 1940. A second destroyer of this type was set on fire and may also have become a total loss.

Appearance Notes.—No mainmast in these ships, w.t. aerials being slung from brackets on second funnel. Very conspicuous control tower abaft the second funnel,.

LE TERRIBLE. 1936, *courtesy Builders.*

VAUBAN 1938, *Grand Studio.*

11 AIGLE Class.

1 *At. et Ch. de France:* ***Aigle.***
1 *At. et Ch. de la Loire:* ***Albatros.***
1 *Ch. de Bretagne:* ***Gerfaut.***
1 *F. et Ch. de la Méd. (Havre):* ***Vautour.***
2 *Lorient:* ***Epervier, Milan.***
Dimensions of these 6: 423½ × 40 × 16 feet.
1 *Ch. de Bretagne:* ***Cassard.***
1 *At. et Ch. de France:* ***Vauquelin.***
1 *F. et Ch. de la Méditerranée (La Seyne):* ***Le Chevalier Paul.***
2 *At. et Ch. de la Loire:* ***Kersaint, Tartu.***
Dimensions of these 5: 424½ × 39 × 15½ feet.

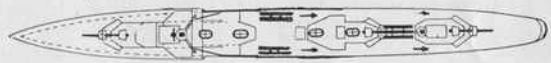
All 11 ships: Displacement: 2,441 tons (3,090 tons full load). Complement: 220. Guns: **5**—5·5 inch, **4**—37 mm., **4** D.C.T. Tubes: **7**—21·7 inch, except *Aigle*, *Albatros*, *Gerfaut*, *Vautour* with 6. Machinery: 2 sets geared turbines—Parsons in *Albatros*, *Milan*, *Vautour*, *Ch. Paul*, *Kersaint*, *Tartu*; Zoelly-Fives-Lille in *Aigle* and *Vauquelin*; Rateau-Ch. de Bretagne in *Cassard*, *Epervier*, *Gerfaut*. Boilers: 4 small tube, Yarrow or Penhoët. S.H.P.: 64,000 = 36 kts. except *Epervier* and *Milan*, 68,000 = 36·5 kts. Oil fuel: 650 tons. Radius: 3,000 miles at 18 kts.

5 GUÉPARD Class.

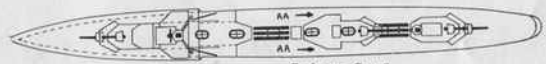
1 *At. e .Ch. de France:* ***Lion.***
1 *Lorient:* ***Guépard.***
Dimensions of both: 427 × 38¾ × 15¾ feet
1 *At. et Ch. de la Loire:* ***Verdun.***
1 *At. et Ch. de France:* ***Vauban.***
1 *At. et Ch. de St. Nazaire (Penhoët):* ***Valmy.***
Dimensions of these 3: 427 × 39 × 16¾ feet.

All 5 ships: Displacement: 2,436 tons (about 3,080 tons *full load*). Complement: 209. Guns: **5**—5·5 inch, **4**—37 mm., **4** D.C.T. Tubes: **6**—21·7 inch. Machinery: 2 sets geared turbines—Parsons in *Guépard*, *Valmy*, *Verdun*; Zoelly-Fives-Lille in *Lion* and *Vauban*. Boilers: Small tube, varying types. Oil fuel: 550 tons. Radius of action: 3,000 miles at 18 kts.

Programme	*Name*	*Begun*	*Launch*	*Completed*	*Trials*
1927	*Aigle*	1929	19/2/31	1932	39·67
	Albatros	1929	28/6/30	1931	42·6
	Gerfaut	1929	14/6/30	1932	93,000 = 42·78
	Vautour	1929	26/8/30	1932	80,000 = 40·2
	Epervier	6/30	14/8/31	1933	87,000 = 41·9
	Milan	6/30	13/10/31	1933	83,000 = 43·4
1928–29	*Cassard*	11/30	8/11/31	1932	80,600 = 43·4
	Vauquelin	3/30	29/9/32	1934	39·4
	Chev. Paul	2/31	21/3/32	1934	40·4
	Kersaint	9/30	14/11/31	1933	39·1
	Tartu	1930	7/12/31	1932	41·02
1925	*Lion*	4/27	5/8/29	1931	66,298 = 40·4
	Guépard	2/27	19/4/28	1929	69,100 = 38·4
	Verdun	1927	4/7/28	1930	72,400 = 40·1
1926	*Vauban*	1927	1/2/29	1931	40·2
	Valmy	1927	19/5/29	1930	69,300 = 39·8



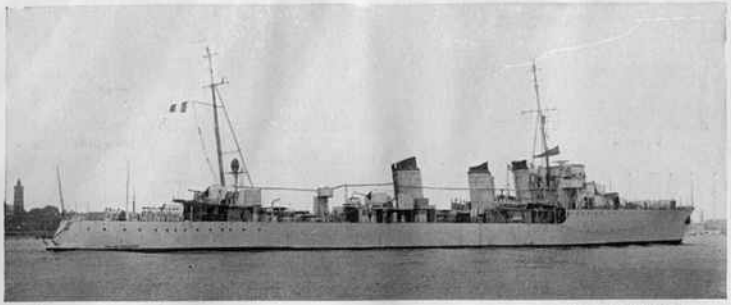
MILAN, EPERVIER and 5 of CASSARD group.



GUÉPARD CLASS.
ALSO AIGLE, ALBATROS, GERFAUT, VAUTOUR.

4 Tigre Class.

(Classed as *Contretorpilleurs.*)



LÉOPARD 1936, *Wright & Logan.*

1922 Programme

		Begun.	*Launched.*	*Compl.*	*Trials.*
Panthère	Lorient Dockyard	1922	28/10/24	1926	=35·3
Léopard ..	Ch. de Loire		29/9/24	1927	=34·9
Lynx ..	St. Nazaire		25/2/25	1927	=34·5
Tigre ..	Ch. de Bretagne Nantes.		2/8/24	1926	58,000=36·7

Displacement: 2,126 tons; 2,700 tons full load. Complement: 204.

Dimensions: 392¾ (*p.p.*), 416 (*o.a.*)×37½×17½ feet (*max.*)

Guns: 5—5·1 inch. 8—13 mm. AA. 4—D.C. Throwers.

Tubes: 6—21·7 inch.

Oil: 250/550 tons.
Radius: 3,500 miles at 15 kts.
2,500 „ „ 18 „
900 „ „ full speed.

S.H.P. 55,000=35·5 kts. Breguet-Loire turbines (*Léopard* and *Lynx*). Rateau-Ch. de Bretagne in other two. 5 small tube Du Temple boilers.

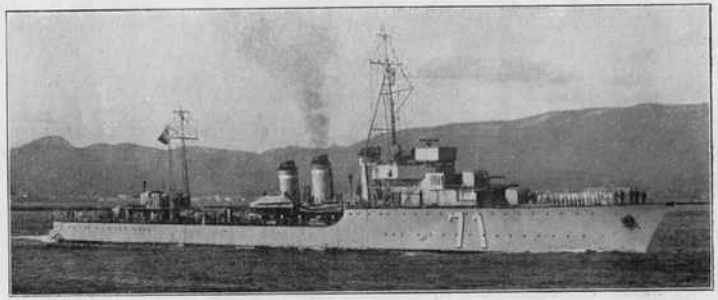
Average speed at normal displacement and H.P.

Panthère 35·3 *Tigre* 35·9
Léopard 34·9 *Lynx* 34·5

Note to Plan:—Additional AA. gun positions not indicated.

11 Alcyon Class.

(Classed as *Torpilleurs.*)



LE MARS. 1929 *Photo, M. Bar, Toulon.*

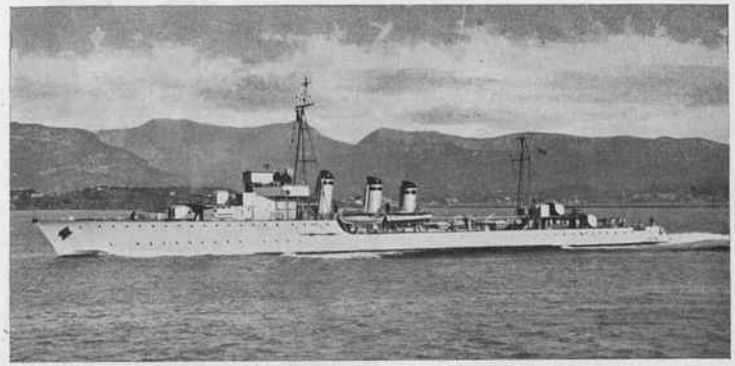
L'Alcyon (June 26th, 1926). (Launched at Harfleur and towed to Bordeaux for completion.)
Le Fortuné (Nov. 15, 1926), ***Le Mars*** (Aug. 28, 1926).
La Palme (June 30th, 1926).
Basque (May 25th, 1929), ***Bordelais*** (May 23rd, 1928), ***Boulonnais*** (June 1st, 1927), ***Brestois*** (May 18th, 1927)
Forbin (July 17th, 1928), ***Fougueux*** (Aug. 4th, 1928), ***Frondeur*** (June 20th, 1929).

Displacement: 1,378 tons *standard* (*about* 1,750 *full load*). Dimensions: 330·9 × 32½ × 9½ feet. Complement: 142. Guns: 4—5·1 inch, 2—37 m/m. AA. Torpedo tubes: 6—21·7 inch, in triple deck mountings. 16 Depth Charges carried. Machinery: 2 sets geared turbines of Zoelly type in *Alcyon, Bordelais, Frondeur.* Rateau-Ch. de Bretagne in *Basque, Fougueux.* Parsons in remainder. H.P.: 32,000–35,000 = 32–33·5 kts. Other particulars similar to those of *Simoun* class, but slightly increased boiler power to give improved speed. On trials *Brestois* reached 34·5 kts, *Fougueux* 36·4, *Basque*, 38,000 = 35 (all *max.*).

Note.—Ordered under Programmes of 1924 (first four), 1925 (next four), and 1926 (last three). As compared with *Simoun* type, these vessels possess improved stability, higher rate of salvo firing, better aerial defence and lower fuel consumption. 5·1 inch guns said to possess a range of 19,000 yards, and can fire eight rounds a minute.

Name	*Builder*	*Engines*	*Begun*	*Completed*
L'Alcyon	F. & Ch. de la Gironde	Ch. de la Gironde	1925	1927
Le Fortuné	Ch. Navals Français, Blainville	A. & Ch. de la Loire		Sept., 1927
Le Mars	Ch. Navals Français, Blainville	A. & Ch. de la Loire		April, 1927
La Palme	Ch. Dubigeon, Nantes	A. & Ch. de la Loire		1927
Brestois	Ch. Navals Français, Blainville	A. & Ch. de la Loire	Sept., 1926	1928-29
Boulonnais	Ch. Navals Français, Blainville	A. & Ch. de la Loire		
Pasque	Ch. de la Seine Maritime (Worms)	A. & Ch. de Bretagne		
Bordelais	F. & Ch. de la Gironde, Bordeaux	Ch. de la Gironde		
Forbin	F. & Ch. de la Med., Havre	F. & Ch. de la Med.	1927	1929
Fougueux	A. & Ch. de Bretagne, Nantes	A. & Ch. de Bretagne		
Frondeur	Ch. Navals Français, Blainville	A. & Ch. de la Loire		

9 Simoun Class.



SIMOUN. 1930 *Photo, M. H. le Masson.*

2 *F. & Ch. de la Méditerranée (Havre)*: **Cyclone** (Jan. 24th, 1925), **Mistral** (June 6th, 1925).
1 *Ch. Navals Français (Blainville)*: **Orage** (Aug. 30th, 1924).
1 *A. & Ch. de St. Nazaire (Penhoët)*: **Simoun** (June 3rd, 1924).

1 *Ch. Trubigeon*: **Tempete** (Feb. 21st, 1925).
3 *F & Ch. de la Gironde*: **Tramontane** (Nov. 29th, 1924), **Typhon** (May 22nd, 1924), **Trombe** (Dec. 29th, 1925).
1 *Dyle & Bacalan*: **Tornade** (March 12th, 1925).

Displacement: 1,319 tons *standard*, 1,727 tons *full load*. Dimensions: 326 (*pp.*), 347 (*o.a.*) × 33 × 13¾ feet. Complement: 138. Guns: 4—5·1 inch, 2—37 m/m. AA. Torpedo tubes: 6—21·7 inch, in triple deck mountings. Geared turbines of Rateau-Bretagne type in *Orage*; Zoelly in *Typhon*, *Tramontane* and *Trombe*; Parsons in other five ships. H.P.: 33,000 = 33 kts. (over 34 reached on trials). Boilers: 3 small tube. 2 screws. Oil: 165 tons *normal*, 300 tons *max.* Radius: 3,000 miles at 15 kts.

Notes.—Authorised by Law of 18th August, 1922. 8 hours' trials: *Orage*, 34,000 = 33·8 kts.; *Simoun*, 29,000 = 33·2 kts. (1 hour = 34·3); *Mistral* (12 hours), 34 kts. All completed 1926–27. It has been stated that these vessels lose their speed rapidly in a seaway, and that few, if any, of them can now make designed speed. All had funnels cut down by about 3 feet to improve stability, soon after completion.

14 Agile Class

(Classed as *Torpilleurs Légers*)

Building ?

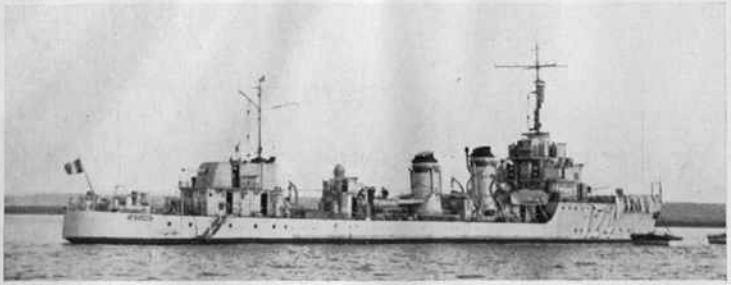
5 *At. et Ch. de Bretagne*: **L'Agile, Le Fier, L'Alsacien, Le Breton, Le Saintongeais.**
7 *At. et Ch. de la Loire*: **L'Entreprenant, Le Farouche, Le Corse, Le Tunisien, Le Normand, Le Parisien, Le Provencal.**
2 *F. et Ch. de la Mediterranée*: **Le Nicois, Le Savoyard.**

Displacement: 994 tons.
Dimensions: 295½ × 30½ × 8½ feet.
Guns: 4—3·9 inch, 4—40 mm. AA. Tubes: 4—21·7 inch (paired).
Machinery: Geared turbines, Rateau-Chantiers de Bretagne in first five; Parsons in others. S.H.P.: 28,000 = 34 kts.

Programme	Name	*Laid down*	*Launch*	*Completed*
1937	*L'Agile*	1938	12/3/40	
	Le Fier			
	L'Entreprenant			
	Le Farouche			
1938	*L'Alsacien*	26/4/39		
	Le Breton			
	Le Corse			
	Le Tunisien			
	Le Savoyard	29/6/39		
	Le Normand			
	Le Parisien			
	Le Provencal			
	Le Nicois			
	Le Saintongeais			

Special Note.

It is probable that most of those building in French Atlantic ports were reduced to wrecks before the enemy occupation. *Le Fier* is the only one known to have been launched.



La Flore. 1937, *Capt. M. Adam.*

12 boats: ***La Melpomène*** (Ch. de Bretagne, Nantes, 24 Jan. 1935)
La Pomone (Ch. de Loire, Nantes, 25 Jan., 1935)
La Flore (Ch. de Bretagne, Nantes, 4 May, 1935)
L'Iphigenie (Ch. de Loire, Nantes, 18 April, 1935)
La Poursuivante (At. et Ch. de France, Dunkerque, 4 Aug., 1936)
L'Incomprise (Ch. Worms, Rouen, April 14, 1937)
La Bayonnaise (Ch. Sud Ouest, Bordeaux, Jan. 28, 1936)
La Cordelière (Sept. 9, 1936) } (Augustin Normand)
Branlebas (April 12, 1937) }
Bombarde (At. et Ch. de la Loire, St. Nazaire, March 23, 1936)
Baliste (At. et Ch. de France, Dunkerque, March 17th, 1937)
Bouclier (Ch. Worms, Rouen, Aug. 9. 1937)

Displacement: 610 tons (700 tons *full load*). Complement, 92.

Dimensions: 245½ (*p.p.*), 264¾ (*o.a.*) × 26 × 9½ feet (*mean* draught).

Guns: 2—3·9 inch, 2—37 m/m., 2 Twin M.G.

Tubes: 2—21·7 inch.

Machinery: Parsons geared turbines in all except *La Cordelière, L'Incomprise, Bouclier, Branlebas*, which have Rateau-Bretagne Type.

H.P. 22,000 = 34·5 kts. (exceeded on trials.)

Oil fuel: 90 tons.

Radius: 1,800 at 18 kts.; 700 at 35 kts.

Provided for under 1931 and 1932 Programmes.

First 4 completed during 1936, second 4 in 1937, third 4 in 1938.

La Pomone. 1937, *courtesy M. Le Masson.*

Motor Torpedo Boats.

(*Vedettes Torpilleurs à Moteurs*)

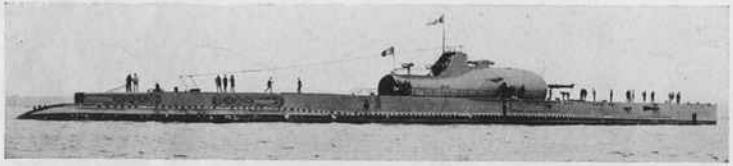
VTB 15–40. Authorised or building under 1938 Programme. May not all be of same type. Four boats have been ordered from Jouett, Sartrouville, to have Lorraine engines, and eight more ordered elsewhere are to be similarly engined. It is possible that experimental orders may also have been placed with English builders.

VTB 11, 12, 13, 14, built under 1937 and 1938 Programmes. Displacement: 28 tons. 2—18 inch Torpedo Tubes. H.P.: 2,000 = 45 kts. No other particulars advised, except that they are of same general type as *VTB* 8, below.

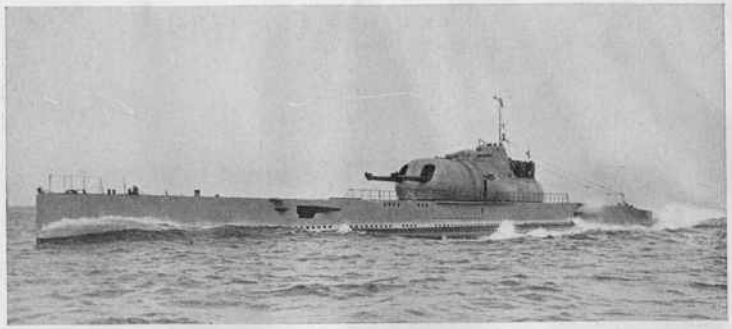
VTB 8. 1938, *Official*

VTB 8 (A. C. Loire and Silbur Meulan). 19 tons. Dimensions: 62½ × 13 × 9½ feet. Two 12-cylinder motors. H.P.: 2,200 = 46 kts. (50 kts. on trials). Armament: 2—M.G., 2—18 inch Torpedoes fired from twin closed Tubes, stern first, or carried externally in side gears. Reported to be an exceptionally handy craft, able to turn in her own length, and a good sea boat.

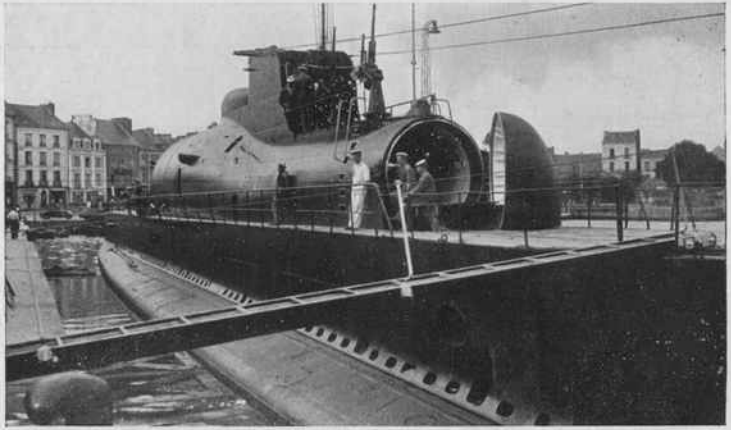
Note.—Earlier vessels now disarmed and relegated to harbour training service and reckoned non-effective. *VTB* 9 was lost on August 7, 1939.



1932 *Photo.*



SURCOUF. 1935



SURCOUF (showing hangar open and AA guns.) 1936, *M. Le Masson.*

Surcouf (November 18, 1929, Cherbourg). Displacement: 2,880/4,304 tons. Complement: 150. Dimensions: 361 × 29½ × 23½ feet. Guns: 2—8 inch, 2—37mm. AA., 4 M.G. Tubes: 10—21·7 inch. 22 Torpedoes carried. Aircraft: 1 Small Seaplane. Machinery: Sulzer Diesels. B.H.P.: 7,600 = 18 kts. *surface* (19 kts. on *trials*). Electric Motors, H.P.: 3,400 = 10 kts. *submerged*. Radius: 12,000 miles at 10 kts. Diving limit: over 70 fathoms.

Notes.—Is the largest submarine in the world, representing an experimental type not likely to be repeated. Designed as a corsair and carries the heaviest guns allowed by Treaty. Can dive in 2 minutes. The Torpedo armament appears to be disposed as follows: 2 in bows, 4 revolving in pairs before C.T., and 4 abaft it. Trials included an endurance cruise of 5,000 miles from Cherbourg to Agadir, Dakar and Konakri in Nov., 1932, and submergence for a period of 60 hours. She did not officially enter into service until 1934. Sea speed does not exceed 16 kts. Designed by M. Roquebert under 1926 Programme. She has been in a British port since June, 1940.

5 Morillot Class

All these vessels are understood to have been demolished before the enemy entered Cherbourg.

Roland Morillot, La Praya, La Guadeloupe, La Martinique, La Réunion. All laid down at Cherbourg as noted below. Displacement: First 2, 1,500/2,000 tons; others 1,605/2,100 tons. Dimensions: First 2, 302½ × 27½ × 14 feet. Guns: 4—3·9 inch, 2—13 mm. AA. (twin mount). Tubes: 8—21·7 inch. Diesels H.P.: 12,000 = 23 kts. *surface*. Electric motors, H.P.: ——— = 10 kts. *submerged*.

Programme	*Name*	*Laid down*	*Launch*
1934	*R. Morillot*	1/12/37	6/40
1937	*La Praya*	2/11/38	6/40

Programme	*Name*	*Laid down*	*Launch*
1938	*Guadeloupe*	3/39	
	Martinique	1939	
	Réunion	1939	

27 Redoutable Class.

MONGE. 1935, *Ganda.*

VENGEUR. 1930 *Photo, favour of M. of Marine.*

27 *Roquebert design.*

1924 Programme.

Redoutable (Feb. 24th, 1928) }
Vengeur (Sept. 1st, 1928) } Cherbourg.

1925 Programme.

Pascal }
Pasteur } (July 19th, 1928), Brest.
Henri Poincare } (April 10th, 1929), Lorient.
Poncelet
Fresnel (June 8th, 1929), St. Nazaire (Penhoët).
Archimede (Sept. 6th, 1930), Ch. Nav. Fr. Blainville.
Monge (June 25th, 1929), La Seyne.

1926 Programme.

Actéon (April 10th, 1929) } A. C. Loire.
Acheron (Aug. 6th, 1929) }
Argo (April 11th, 1929), Ch. Dubigeon, Nantes.
Achille (May 28th, 1930) Brest.

1927 Programme.

Protée (July 31st, 1930), F. C. Havre.
Pégase (July 28th, 1930), A. C. Loire.

1928 Programme.

L'Espoir (July 18th, 1931) }
Le Glorieux (Nov. 29th, 1932) } Cherbourg.
Le Centaure } (Oct. 14th, 1932), Brest.
Le Héros }
Le Conquerant (June 26th, 1934), A. C. Loire.
Le Tonnant (Dec. 15th, 1934), La Seyne.

1930 Programme.

Agosta (Apl. 30th, 1934) }
Beveziers (Oct. 14th, 1935) } Cherbourg.
Ouessant (Nov. 30, 1936) }
Sidi-Ferruch (July 9, 1937) }
Sfax (Dec. 6th, 1934) }
Casablanca (Feb. 2nd, 1935) } A. C. Loire.
(ex *Casablanca*)

Displacement: First two, 1,384 tons *surface*; 2,080 tons *submerged*; remainder 1,379 tons *surface*: 2,060 tons *submerged*. Dimensions: 302½ × 27 × 16 feet. Diesels: 2 sets Sulzer or Schneider-Carel type, H.P. 6,000 = 17 kts. Vessels of 1930 Programme, H.P. 8,400 = 18 kts. Electric motors of H.P. 2,000 = 10 kts. *submerged*. 1 auxiliary Diesel, H.P. 750. 2 shafts. Armament: 4—3·9 inch AA, 2 M.G. (first two have 1—37 mm. AA. and 1 M.G. as secondary armament), 11—21·7 inch tubes, including 2 sets of revolving tubes in triple and quadruple mountings, the latter at the stern. Complement: 67.

Radius of action = 30 days' cruising.

Notes.—Have proved very successful vessels. *Vengeur* and *Redoutable* performed a cruise to the West Indies in 1930 without mishap, and were able to make 19 kts. easily without being pressed. A longer unescorted cruise was that of *Glorieux* and *Héros* from Toulon to Saigon in 1935, a distance of 14,350 miles for the round voyage. Even longer cruises were made 1937-38, by other units, to the West Indies, Indo-China and the South Atlantic. *H. Poincaré* maintained an average of 17·6 kts. for 48 hours on trials. 1927 and 1928 boats reached 19 kts. and with 6,500 H.P., and *Agosta* with 8,600 H.P. was able to do 20·5 kts. *Promethee* lost on trials, July 8, 1932. *Phénix* lost in Indo-Chinese waters, June 15, 1939, and a new vessel of same name of *Aurore* type ordered in replacement. *Ajax* and *Persée* sunk at Dakar, Sept. 23rd, 1940.

AGOSTA 1936

16 Aurore Class.

Note.—Most of the vessels building in occupied territory are believed to have been effectually demolished.

2 *Toulon:* ***Aurore, Phénix.*** 1 *Schneider:* ***Antigone***
5 *Normand:* ***La Bayadère, La Creole, Artemis, Gorgone, Hermione***
4 *Ch. Worms:* ***L'Africaine, La Favorite, Andromaque, Armide***
4 *Ch. Dubigeon:* ***Andromède, Astrée, Clorinde, Cornélie***

Displacement: 893/1,170 tons.
Dimensions: 241 × 21½ × 11½ feet.
Guns: 1—3·9 inch, 2—13 mm. AA. Tubes: 9—21·7 inch.
Machinery: Schneider Diesels in *Aurore, Antigone, L'Africaine, La Favorite;* Sulzer type in others. H.P.: 3,000/1,400 = 17/9 kts.

Programme	*Name*	*Laid down*	*Launch*	*Completed*
1934	*Aurore*	9/36	26/7/39	1940
1937	*L'Africaine*	9/38		
	La Favorite	7/38		
	La Bayadere	8/38		
	La Creole	8/38	1940	

Programme	*Name*	*Laid down*	*Launch*	*Completed*
1938	*Antigone*			1939
	Artemis			
	Gorgone			
	Hermione			
	Andromaque			
	Armide			
	Andromede			
	Astrée			
	Clorinde			
	Cornélie			
1939	*Phénix*	2/40		

10 Saphir Class (Minelayers).

TURQUOISE. 1930 *Photo, A. Ganda.*

10 *Normand-Fenaux* type: ***Saphir*** (Dec. 20th, 1928); ***Turquoise*** (May 16th, 1929); ***Nautilus*** (Mar. 21st, 1930); ***Rubis*** (Sept. 30th, 1931); ***Diamant*** (May 18th, 1933); ***Perle*** (July 30th, 1935); ***Emeraude*** (laid down Sept., 1938) ***Agate, Corail, Escarboucle,*** (all 3 laid down 1940). All built at Toulon. Displacement: 669 tons *on surface*; 925 *submerged*. Dimensions: 216½ × 23¾ × 16 feet. Machinery: 2 sets Vickers-Normand 4-cycle Diesels. B.H.P.: 1,300 = 12 kts. *Submerged* H.P.: 1,000 = 9 kts. Armaments: 1—3 inch AA., 5—21·7 inch tubes, **32** minelaying chutes, arranged on Normand-Fenaux system. Carry **6** torpedoes and **32** mines of 460 lbs. weight. *Saphir* and *Turquoise* 1925 Programme, *Nautilus* 1926, *Rubis* 1927, *Diamant* 1928–29, *Perle* 1930, *Emeraude* 1937, remaining three 1938. Complement: 40. Radius of action: 2,500 miles *surface*; 850 miles *submerged*.

Note.—Mines are stowed in wells in outer ballast tanks, with direct release arrangement.

9 Requin Class.

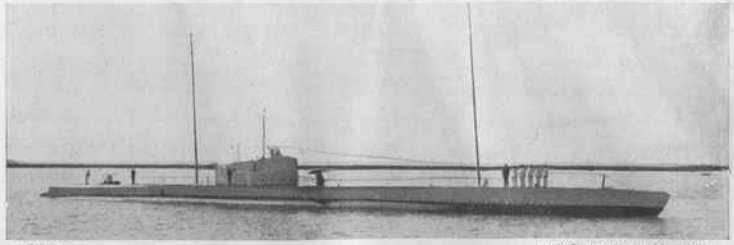
NARVAL. 1938, *Official.*

9 *Fuzier-Roguebert* type: ***Requin*** (19th July, 1924), ***Morse*** (11th Nov., 1925), ***Narval*** (9th May, 1925), ***Souffleur*** (Oct. 1st, 1924), ***Caïman*** (3rd March, 1927), (all Cherbourg), ***Dauphin*** (1925), ***Espadon*** (28th May, 1926), (both Toulon), ***Marsouin*** (Dec. 27th, 1924), ***Phoque*** (16th March, 1926), (both Brest). 974 tons (*on surface*), 1441 tons (*submerged*). Dimensions: 257½ (*p.p.*) × 23 × 17½ feet. Complement: 51. Machinery: 2 Diesel motors, of Sulzer or Schneider-Carel type, each 1450 H.P. Total 2900 H.P. = 16 kts. Electric drive: 248 "D" type batteries, 1800 H.P. = 10 kts. Radius: 7000 miles at 9 kts. (*on surface*), 105 miles at 5 kts. (*submerged*). Endurance: equal to 30 days' cruising. Guns: **1**—3·9 inch, **2** M.G. AA. Torpedo tubes: **10**—21·7 inch (4 bow and 2 stern submerged; 4 above water, revolving in pairs before and abaft C.T.). 32 torpedoes (24 of 1922 model, 8 of 1919 model) carried by *Caïman, Espadon, Phoque*. 16 by others.

Notes.—*Requin, Souffleur, Morse, Narval, Marsouin, Dauphin* begun as *Q* 115—120 of 1922-1923 Programme. Other three came under Coast Defence Vote of June 30, 1923. All completed 1926-27. Freeboard about 7 feet. Can dive with safety to 100 metres (say, 55 fathoms). On commissioning, *Requin* carried out a 5,000 mile cruise, occupying 31 days, in African waters, without mishap of any kind.

(All this class modernised, with complete refit of hull and machinery, 1935–37.)

22 Diane Class.



ORION 1932 *Photo, Capt. M. Adam.*

1926 PROGRAMME
Argonaute (May 23rd, 1929) } Schneider
Aréthuse (Aug. 8th, 1929) }
Diane (May 13th, 1930) } Normand
Méduse (Aug. 26th, 1930) }

1927 PROGRAMME
Amphitrite (Dec. 20th, 1930) Normand
Antiope (Aug. 19th, 1930) } Worms
Amazone (Dec. 28th, 1931) }
Atalante (Aug. 5th, 1930) Schneider

1928 PROGRAMME
Orphée (Nov. 10th, 1931) Normand
Oréade (May 23rd, 1932) Worms
Orion (April 21st, 1931).. Loire
Ondine (May 4th, 1931)..Dubigeon

1929 PROGRAMME
La Psyché (Aug. 4th, 1932) Normand
La Sybille (Jan. 28th, 1933) Worms
La Vestale (May 25th, 1932) } Schneider
La Sultane (Aug. 9th, 1932) }

1930 PROGRAMME
Minerve (Oct. 23, '34) Cherbourg
Junon (Sept. 15th, 1935) Normand
Venus (April 6th, 1935) Worms
Iris (Sept. 23rd, 1934) Dubigeon

1936 PROGRAMME
Cérès (Dec. 9th, 1938). Worms
Pallas (Aug. 25th, 1938) Normand

Displacements: *Argonaute, Aréthuse, Atalante, La Vestale, La Sultane*, 565/800 tons; *Diane, Méduse, Amphitrite, Antiope, Amazone, Oréade, Orphée, La Psyché, La Sybille*, 571/809 tons; *Orion, Ondine*, 558/787 tons: *Minerve, Junon, Vénus, Iris*, 597/825 tons: *Cérès, Pallas*, 602/858 tons. Complement: 48. Dimensions: *Argonaute, Aréthuse, Atalante*, 208 × 21 × 13¾ feet; *Orion, Ondine*, 219 × 22 × 15 feet: *Cérès, Pallas*, 221 × 18½ × 15 feet; remainder, 211 × 20 × 13¾ feet. Armament: **1**—3 inch AA. 1 M.G., **8**—21·7 inch tubes in first 12 boats; but **7**—21·7 inch and **2**—15·7 inch in remaining 10 which have latter tubes mounted on either side of a larger tube in after triple group. Machinery: 2 sets Diesels, of Schneider-Carel type in *Argonaute, Aréthuse, Atalante, La Vestale, La Sultane, Cérès, Pallas*; Vickers-Normand in *Diane, Méduse, Amphitrite, Amazone, Antiope, Orphée, Oréade, La Psyché, La Sybille, Minerve, Junon*; Sulzer in *Orion, Ondine*. B.H.P.: 1,300 to 1,800 = 14 kts. *surface*. Electric motors. H.P.: 1,000 = 9 kts. *submerged*. Radius: 3,000 miles at 10 kts. *surface*; 78 miles at 5 kts. *submerged*.

Notes.—Designs of these submarines are by Normand, Loire-Simonot (*Orion* and *Ondine*) and 1930-36 batch by Ministry of Marine. All are of same general type with minor differences, reflected in appearance, according to builders.

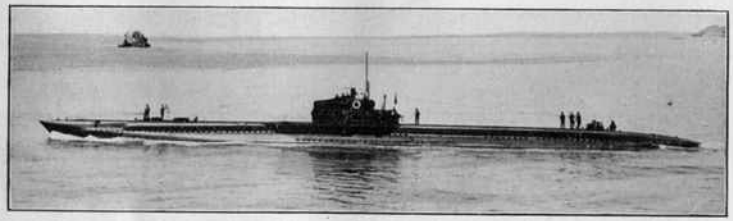
ATALANTE *Added* 1937, *Ganda.*

9 Sirene Class.

SIRÈNE. 1927 *Official Photo.*

3 *Simoust* type, built by A. & C. de la Loire, St. Nazaire: ***Naïade*** (Oct. 20, 1925), ***Sirène*** (August 6, 1925), ***Galatée*** (Dec. 18, 1925). Displacement: 548 tons surface, 764 tons submerged. Dimensions: 210 (p.p.) × 21 × 14½ feet. Machinery: 2 sets 2-cycle Sulzer Diesels, B.H.P. 1,300 on *surface*, = 14 kts. 1,000 submerged = 7·5 kts. Complement, 40.

Following particulars apply to all 9. Complement: 40. 140 to 144 "D" type electric batteries. Speed: 14 kts. on *surface*, 7·5 kts. *submerged*. Radius: *surface*, 2,000 miles at 10 kts.; *submerged*, 90 miles at 5 kts. Endurance equal to 20 days' cruising. Can dive to 45 fathoms. Guns: **1**—3 inch AA., **2** M.G. Torpedo tubes (21·7 inch): **7**. 13 torpedoes carried. Cost stated to be Frs. 8,500,000 each.



ARIANE. 1927 *Official Photo.*

3 *Normand-Fenaux* type, built by C. & A. Augustin Normand, Le Hâvre: ***Ariane*** (August 6, 1925), ***Danaé*** (Sept. 11, 1927), ***Eurydice*** (May 31, 1927). Displacement: 576 tons *surface*, 765 tons *submerged*. Dimensions: 216½ (p.p.) × 20½ × 13½ feet. Machinery: 2 sets 4cycle Diesels, Vickers-Normand type. Electric motors by Schneider et Cie. 1,200 B.H.P. on *surface* = 14 kts. 1,000 *submerged*—7.5 kts. Complement, 40.

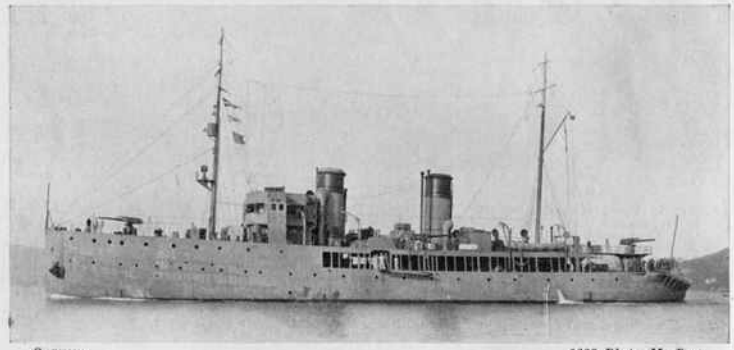
Note.—This type is reported to have given great satisfaction in service. A fourth boat, *Ondine*, lost by collision with a Greek steamer, October 3rd, 1928.

3 *Schneider-Laubeuf* type, built by Schneider et Cie, Chalon-sur-Saône: ***Circé*** (Oct. 29, 1925), ***Calypso*** (Jan. 1926), ***Thetis*** (June 30, 1927). Displacement: 552 tons *surface*, 785 tons *submerged*. Dimensions: 204½ (*pp.*) × 21½ × 12½ feet. Machinery: 2 sets 2-cycle Schneider-Carels Diesels. B.H.P.: 1,250 = 14 kts. H.P.: 1,000 = 7·5 kts. *submerged*.

Notes.—Ariane, Calypso, Circé, Naïade, Ondine, Sirène, were laid down as *Q.12bis—12b* of 1922-23 Programme; others under Coast Defence Vote of Sept. 30, 1923. *Nymphe*, of this type, scrapped in 1939. *Doris* lost off Belgian coast, May, 1940.

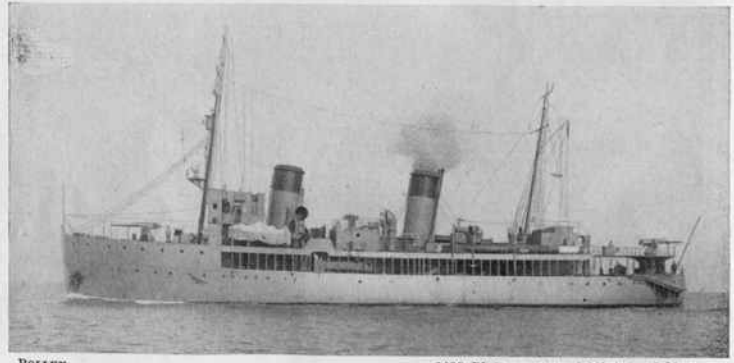
Minelayers (*Mouilleurs de Mines*).

Note.—10 submarines of *Saphir* class are also fitted for minelaying, as are escort vessels of *Bougainville* class.



CASTOR. 1930 *Photo, M. Bar.*

CASTOR (ex-Russian Icebreaker *Kozma Minin*) (Swan Hunter, 1916). Displacement: 3,150 (*standard*) tons. Dimensions: 236 (*pp.*), 248 (*o.a.*) × 57 × 19 feet (*mean*), 22 feet (*max*). 3 sets triple expansion engines. 6 S.E. boilers. I.H.P.: 6,400 = 14·5 kts. Coal: 686 tons. Carries 368 mines. Armament: **4**—3·9 inch, **2**—37 mm. AA. Complement: 167. Radius: 4,500 miles at 10 kts.



POLLUX. 1930 *Photo, courtesy of Ministry of Marine.*

POLLUX (ex-Russian Icebreaker *Ilya Murometz*) (Swan Hunter, 1915). Displacement: 2,461 (*standard*) tons. Dimensions: 200 (*p.p.*), 211 (*o.a.*) × 50½ × 20 feet. Triple expansion engines. 6 cylindrical boilers. I.H.P.: 4,000 = 14 kts. 2 screws. Coal: 367 tons. Carries 236 mines. Armament: **4**—3·9 inch, **2**—37 mm. AA. Complement: 162. Radius: 2,300 at 8 kts., 1,470 miles at 14 kts.

Note.—Both these vessels were converted into Mine Layers by Lorient Dockyard, 1928-29.

Netlayer.

1935, *courtesy Mons. H. Le Masson.*

1935, *A. Ganda.*

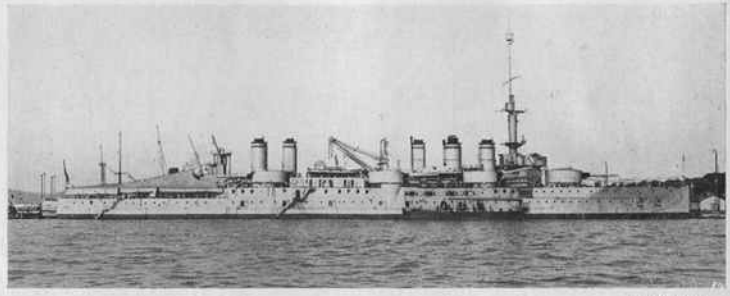
LE GLADIATEUR (April 10, 1933). Displacement: 2,293 tons. Complement: 132. Dimensions: 370¾ × 41½ × 11½ feet. Guns: **4**—3·5 inch AA., **6** M.G. Machinery: 2 Parsons turbines. S.H.P.: 6,000 = 18 kts. 2 Indret boilers. Oil: 399 tons.

Notes.—Laid down at Lorient, 1932, under 1930 Programme. Completed 1934. Trials: S.H.P. 7,700 = 21 kts.

Training Ships (ex-Battleships, demilitarised).

1938, *Official.*

L'OCÉAN (ex-*Jean Bart*), (Sept. 22, 1911). Displacement: 22,189 tons. Dimensions: 541 × 92 × 32½ feet. Guns: **12**—12 inch, **22**—5·5 inch, **7**—3 inch AA., **2**—47 mm. AA. H.P.: 28,000 = 20 kts. Was originally a sister ship of *Courbet* and *Paris*, on an earlier page.



1938, *Official.*

CONDORCET (April, 1909). Displacement: 17,597 tons. Dimensions: 475¾ × 84½ × 30 feet. Guns: **4**—12 inch, **12**—9·4 inch, **2**—3 inch AA. H.P.: 22,500 = 16 kts.

Note.—These old ships are of little value save for harbour defence.

FRANCE—Seaplane Carrier (Transport d'Hydravions)

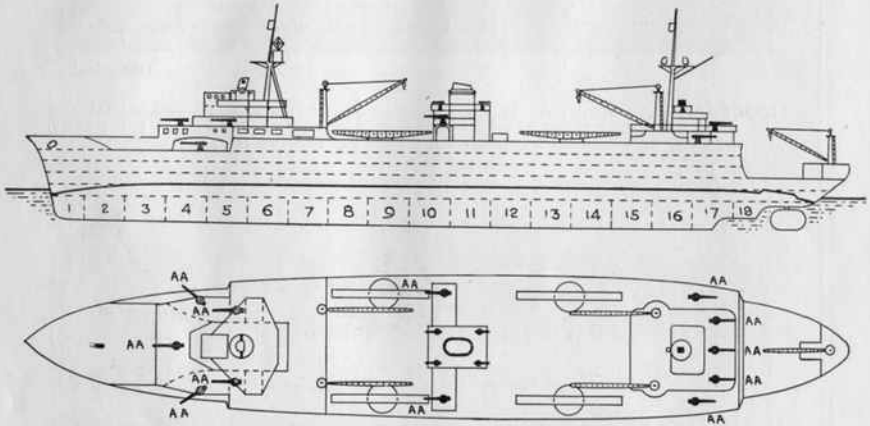
COMMANDANT TESTE. (F. et C. de la Gironde, Bordeaux, April 12th, 1929.)

Standard Displacement: 10,000 tons (about 11,500 tons *deep load*). Length: 512¾ feet (*pp.*), 558 feet (*o.a.*). Beam: 71½ feet (88½ feet, extreme). Draught: 22¾ feet. Complement: 686.

Guns:
12—3·9 inch AA.
8—1 pdr. AA.
12 M.G.
Aircraft: 26
Catapults: 4

Armour:
2" (H.T.?) side at waterline.
1½" protective deck over engine and boiler spaces.

Note to Plan.—3·9 inch AA. abeam of funnel are at deck level.



Machinery: 2 Schneider-Zoelly geared turbines. 2 screws. 4 Yarrow-Loire boilers (mixed firing). S.H.P. 21,000 = 20·5 kts. Radius of action: 6000 miles at 10 kts. Fuel:— Oil 290, coal 720 tons. Trials: Average speed of 21·77 kts. maintained for 3 hours.

Notes.—This vessel is intended to act as a tender to *Béarn*, and as a reserve from which aircraft supplies can be drawn by cruisers which carry planes. Authorised under 1926 Programme, she was ordered in May, 1927, and completed in 1931. She carries 4 catapults, Penhoët 3-ton type, with accommodation for 26 seaplanes in a hangar measuring 275 × 88½ × 23 feet high.

Special Note.

This ship was heavily shelled and set on fire at Mers-el-Kebir on July 3, 1940, but her ultimate fate is uncertain.

1934, *Nautical Photo Agency* (*added* 1935).

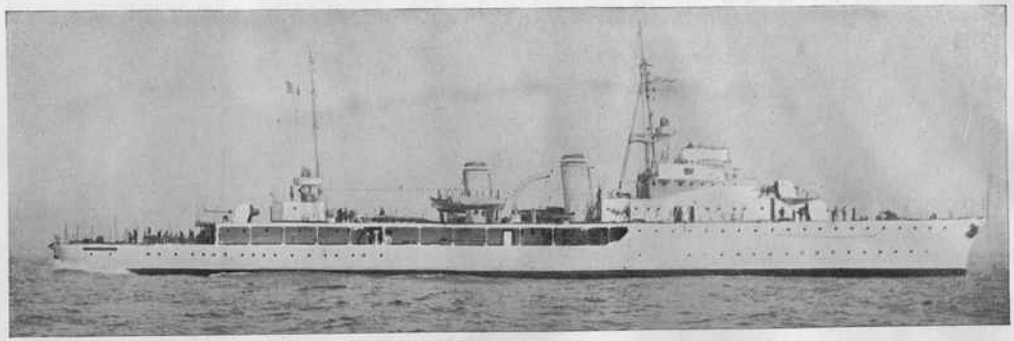
1933 *Photo, Leslie H. Howard, Esq.*

(Classed as *Avisos Coloniaux*).
BOUGAINVILLE Class—8 Ships.

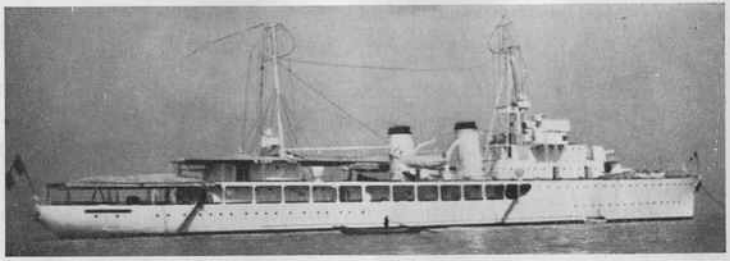
1 *Ch. Gironde :* **BOUGAINVILLE** (April 21, 1931).
3 *Ch. Sud-Ouest :* **DUMONT D'URVILLE** (March 21, 1931).
SAVORGNAN DE BRAZZA (June 18, 1931).
AMIRAL CHARNER (Oct. 1, 1932).
4 *Ch. Provence :* **D'ENTRECASTEAUX** (June 22, 1931).
D'IBERVILLE (Sept. 23, 1934).
BEAUTEMPS-BEAUPRÉ (June 20, 1939).
LA GRANDIÈRE (ex-*Ville d'Ys*) (Laid down 1938).

Displacement : 1,969 tons *standard* ; 2,156 tons *normal*. Complement : 136.
Dimensions : 340 × 41⅔ × 14¾ feet.
Guns : 3—5·5 inch, 4—37 mm. AA., 6 or 8 M.G. Stowage for 50 mines. 1 seaplane carried.
Machinery : 2 sets Diesels—Sulzer in *D'Iberville*, *Dumont d'Urville*, *La Grandière* and *Savorgnan de Brazza* ; Schneider-Burmeister in other 4 ships. S.H.P. : 3,200 = 15·5 kts.
Radius : 9,000 miles at 10 kts. Fuel Oil : 60 tons. Diesel Oil : 220 tons.

Notes.—First ship was authorised in 1927 ; two in 1928, three in 1930, and two in 1937. Those built by At. & Ch. du Sud-Ouest, Bordeaux (except *Charner*) have Sulzer Diesels, made by the At. & Ch. de la Loire and F. & Ch. de la Mediterranée, respectively. Those built by La Société d'Exploitation des Chantiers de la Gironde, Bordeaux, and Ch. & At. Provence, Port de Bouc, are engined with Burmeister & Wain Diesels manufactured by Schneider.
These vessels are designed for tropical service, with a special arrangement for circulation of cool air, and auxiliary plant is electrically driven through 3 Diesel groups 125 kws. each and 2 auxiliary petrol groups 22 kws. each. All are fitted as flagships. Hulls, roofs and bridges are protected against bullets and splinters.
They have proved most efficient and reliable in service. On trials, *Am. Charner* averaged 17·86 kts., maximum 18·9 kts., *Dumont d'Urville* averaged 17·2 kts. *Sav. de Brazza* (now with Free French forces), 18·1 kts. *D'Entrecasteaux*, 17·5 kts. Consumption at 10 kts. averages 26·55 lbs. per mile.
Rigault de Genouilly, of this type, was torpedoed by a British submarine on July 3, 1940.



DUMONT D'URVILLE. 1932 *Photo, Official.*



SAVORGNAN DE BRAZZA. 1934 *Photo.*

AMIRAL CHARNER. 1935, *Ganda*

(Classed as *Aviso*)

1921 *Photo, Com. R. Steen Steensen, R.D.N.*

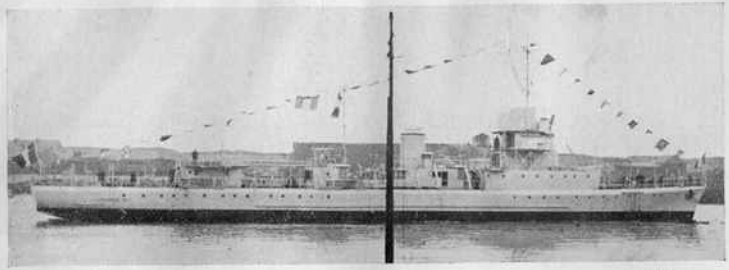
VILLE D'YS (ex-*Andromède*), Swan, Hunter & Wigham Richardson, Wallsend-on-Tyne, June, 1917.
Displacement : 1,121 tons. Complement : 103.
Dimensions : 255½ (*p.p.*), 272½ (*o.a.*) × 39½ × 16½ feet.
Guns : 3—3·9 inch, 2—3 inch, 2—47 mm.
Machinery : 1 set 4-cyl. triple expansion. I.H.P. : 2,500 = 17 kts.
Boilers : 2 cylindrical. Coal : 270 tons = 2,400 miles at 10 kts.

Note.—Generally of same build as British sloops of the "Flower" class. Built under 1916 War Programme to replace *Rigel*, lost. Begun for British Navy as *Andromeda*, and turned over to French Navy. Was employed on Newfoundland fisheries services.

FRANCE—Minesweepers & Patrol Vessels

(Classed as *Avisos-Dragueurs.*)

(ÉLAN CLASS—25 SHIPS.)



CDT. BORY. 1939.

8 *Lorient Dockyard:* **CHAMOIS** (April 19, 1938), **CHEVREUIL** (June 17, 1939), **ÉLAN** (July 27, 1938), **LA SURPRISE** (ex-*Bambara*) (June 17, 1939), **GAZELLE** (June 17, 1939), **ANNAMITE** (June 17, 1939), **LA CURIEUSE** (Nov. 11, 1939), **LA MOQUEUSE** (Jan. 21, 1940).

4 *At. et Ch. de France, Dunkerque:* **COMMANDANT BORY** (Jan. 26, 1939), **COMMANDANT DELAGE** (Feb. 25, 1939), **L'IMPETUEUSE** (Aug. 17, 1939), **LA BOUDEUSE** (Feb. 15, 1940).

3 *Ch. Dubigeon, Nantes:* **COMMANDANT DUBOC** (Jan. 16, 1938), **LA CAPRICIEUSE** (April 19, 1939), **COMMANDANT DOMINÉ** (ex-*La Rieuse*) (May 2, 1939).

7 *Ch. et At. de Provence, Port de Bouc:* **COMMANDANT RIVIÈRE** (Feb. 16, 1939), **LA GRACIEUSE** (Nov. 30, 1939), **LA BATAILLEUSE** (Aug. 22, 1939), **AMIRAL SÉNÉS, ENSEIGNE BALLANDE, MATELOT LEBLANC, RAGEOT DE LA TOUCHE.**

3 *Forges et Ch. de la Mediterranée, La Seyne:* **LA FURIEUSE, LA JOYEUSE, LA TROMPEUSE.**

Standard displacement: 630 tons, except *Chevreuil, Gazelle, Annamite, La Surprise,* and the 7 last-named above, which are 647 tons. Complement:

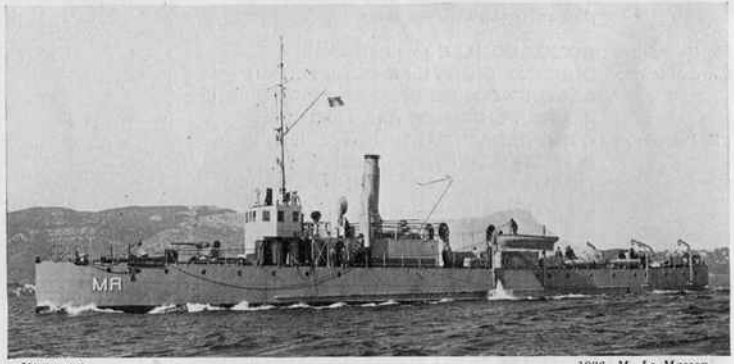
Dimensions: 256 × 27¾ × 7¾ feet.

Guns: 2—3·9 inch AA., 8 M.G.

Machinery: 4 sets Sulzer Diesels. 2 shafts. B.H.P.: 4,000 = 20 kts.

Note.—Élan built under 1934 Programme; *Chamois, Chevreuil* and *Gazelle* under 1935; *Commandant* series (except *Cdt. Domine*) under 1936; last 7 under 1938, and remainder under 1937. First 8 laid down during 1936, others (except last 7) in 1937. *Chamois* is tender to Navigation School, and differs slightly in appearance from others of class, being the only one not flush-decked. *Cdt. Duboc* and *Cdt. Dominé* are attached to Free French forces.

(Classed as *Dragueurs de Mines*).

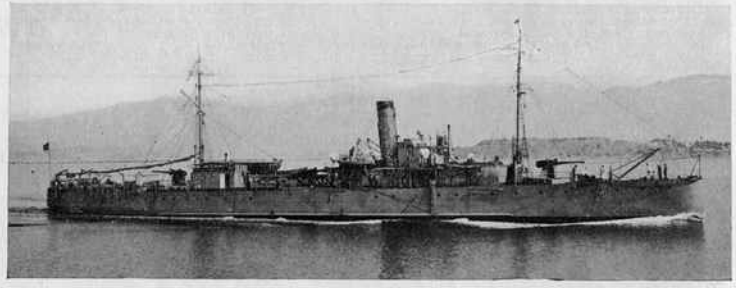


MEULIERE. 1936, *M. Le Masson.*

GRANIT, MEULIÈRE, (1918). 354 tons. Dimensions: 189 (*o.a.*) × 26 × 7½ feet. Machinery: Triple expansion. I.H.P.: 550 = 12 kts. Guns: 1—65 m/m. Coal: 73—90 tons. Complement: 63.

Porphyre scrapped 1932; *Mica* and *Quartz,* 1938.

(Classed as *Avisos.*)



SUIPPE; ANCRE has same appearance. 1930 *Photo.*

ANCRE (Lorient D.Y. Jan., 1918).

SUIPPE (Lorient D.Y. April, 1918).

Displacement: 604 tons. Complement: 107. Dimensions: 250—262 × 28½ × 10¾ feet.
Guns: 4—3·9 inch, 1—9 pdr. AA., 2 M.G. Designed H.P.: 5,000 = 20 kts.
Machinery: 2 sets geared turbines. Boilers: 2 du Temple. 2 screws.
Oil fuel: 140 to 145 tons = 4,000 miles at 10 kts.

Note.—Ancre is tender to Navigation School.

COUCY (Some have foremast abaft funnel). 1933 *Photo, R. Perkins*

("ARRAS" CLASS.—11 SHIPS.)

3 *built at Navy Yards* :—

ARRAS (July, 1918), **YPRES** (ex-*Dunkerque*), (July, 1918). Both built by Brest D.Y. **BELFORT** (March, 1919), by Lorient D.Y.

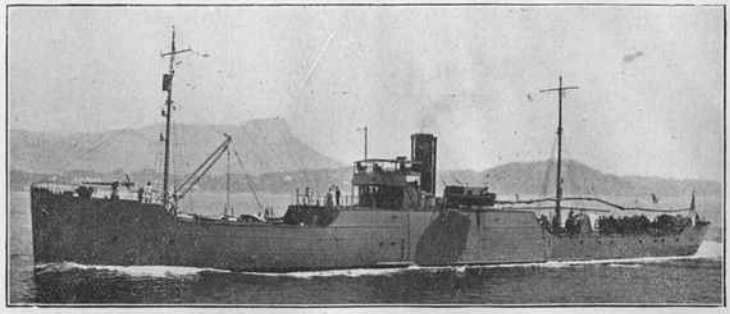
8 *built by Private Yards* :—

LASSIGNY (July 1919) and **LES ÉPARGES** (September, 1919), both by Ch. de Bretagne, Nantes. **TAHURE** (——, 1919), by Ch. de la Loire, St. Nazaire. **COUCY** (June, 1919), **ÉPINAL** (August, 1919), and **VAUQUOIS** (August, 1919), all three by Ch. de St. Nazaire, Penhoët. **AMIENS** (May, 1919), and **CALAIS** (Nov., 1919), both by F. et C. de la Med., La Seyne.

Avisos. Standard displacement : 644 tons. Dimensions : 246 × 31 × 12½ feet. Guns : **2**—5·5 inch, **1**—3 inch AA., **2** M.G. Carry depth charges. Fitted with from two to four searchlights. Designed S.H.P. : 5,000 = 20 kts. Machinery : 2 sets Parsons (geared) turbines. 2 screws. Boilers : 2 Normand or Guyot du Temple oil-burning (small tube). Fuel : 200 tons oil = Endurance : 1,000 miles at 17 kts. ; 3,000 at 11 kts. Complement : about 110.

Notes.—5·5 inch guns reported to be M.1910 (and perhaps M.1916), but *Épinal* is armed with two 5·5 inch guns rebored to fit Army shells. 5·5 inch have large degree of elevation ; *max.* range 17,000 metres. They are very roomy and comfortable ships for their size, and their high bows make them very dry in head seas. But with sea on the beam they are said to roll "like old boots" (*comme des véritables-sabots*), owing to heavy topweight of guns, superstructure, etc. These vessels can make their speed on light draught in good weather, but in a seaway they drop down to 13 kts. Built under Programme VI and VII of 1917 and mostly completed 1919–21, though *Reims* was not finished till 1924. *Ypres* and *Les Éparges* employed on surveying duties ; *Belfort* is Seaplane Tender, with a crane aft. Each has 1—3 inch gun only.

Bar-le-Duc lost, December 1920 ; *Baccarat, Montmirail*, scrapped 1933 ; *Béthune, Epernay*, 1934 ; *Craonne, Liévin, Lunéville, Mondement, Péronne, Toul, Vimy, Vitry-le-François*, 1935 ; *Remiremont*, 1936 ; *Bapaume, Révigny*, 1937 ; *Nancy, Reims, Laffaux*, 1938.



1924 *Photo. A. Dubrau, Toulon.*

AILETTE. The 3·9 inch guns are concealed within lidded ports at angles of superstructure. AA. gun on forecastle.

AILETTE (Brest D.Y., March, 1918).

Displacement : 492 tons. Complement : 107.
Dimensions : 229½ × 27½ × 10 feet.
Guns : 4—3·9 inch, 1—9 pdr. AA., 2 M.G. S.H.P : 5,000 = 20 kts. 2 sets geared Turbines. Boilers : 2 du Temple. 2 screws. Oil : 140 tons = 4,000 miles at 10 kts. 1,400 miles at 15 kts. Lately employed on Fishery Protection duties, though rated as *Aviso*.

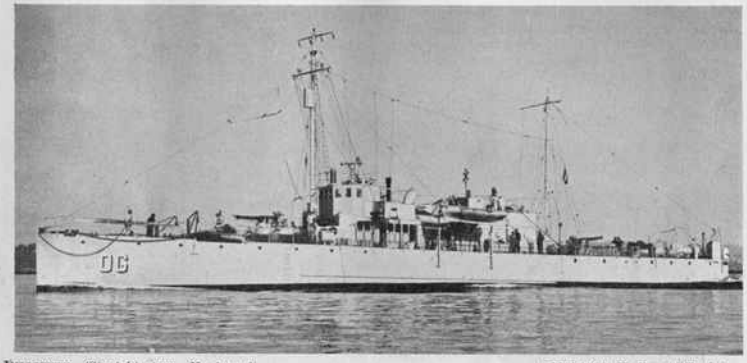
1921 *Photo, M. Bar, Toulon.*

"DUBOURDIEU" TYPE.—2 *Avisos.*

DUBOURDIEU (April, 1918), **ENSEIGNE HENRY** (Nov., 1918). *Standard* displacement : 453 tons. Dimensions : 213¼ (*o.a.*) × 27 × 10 feet (*max.* draught). Guns : 1—5·5 inch, 1—3·9 inch. S.H.P. : 2,000 = 17·4 kts. Machinery : 2 sets of Breguet de Wooch turbines. 2 screws. Boilers : 2 Du Temple-Guyot. Oil : 143 tons = 1,985 miles at full speed. Complement : 74.

Notes.—Built under 1917–18 War Programme. Completed June, 1919—May, 1920. Sixth boat of this class, *Décrès*, cancelled. Originally rated as "Anti-Submarine Gunboats" (*Canonnières Contre Sousmarins*). In build they are like *Arras* class. *Dubourdieu* employed on Surveying Service. *Ens. Henry*, originally named *Dumont-D'Urville*, is tender to Boy Artificers Training Establishment, Lorient. *Duperré, Ducouedic* and *Duchaffault* scrapped.

ENGAGEANTE. *Conquérante* similar, but straight stem. 1935.



DILIGENTE. (Straight stem. No funnel).
LURONNE. (Yacht stem and thin funnel). *Added* 1939, *H. Emery, Toulon.*

CONQUERANTE (Brest D.Y., 1917), **DILIGENTE** (Brest D.Y., 1916), **ENGAGEANTE** (Brest D.Y., 1917), **LURONNE** (Brest D.Y., 1917). Displacement: 315 tons, except *Conquerante*, 374 tons, and *Luronne*, 265 tons. Dimensions: *Conquerante*, 217¾ × 26 × 9¼ feet; *Diligente*, *Engageante*, 217¾ × 23 × 9¼ feet; *Luronne*, 197½ × 23½ × 9½ feet. Guns: 2—3·9 inch. Carry D.C. and may also be equipped as Minesweepers. B.H.P.: *Conquerante*, 1,500 = 17 kts.; others, 900* = 15 kts. Machinery: 2 sets 450* B.H.P. Sulzer*-Diesel engines. Oil: 30 tons = 3,000 miles at 10 kts., 1,600 miles at 15 kts. Complement: 54.

Notes.—Generally the same design as the *Dédaigneuse*, *Etourdi* and *Tapageuse* in next column, but above 4 boats have Diesel engines. All built under 1916 War Programme, except *Luronne*, of 1917 Programme. *Chiffonne*, *Friponne*, *Impatiente* and *Mignonne* sold to Rumania, January, 1920; *Bouffonne*, *Vaillante* and *Surveillante* scrapped.

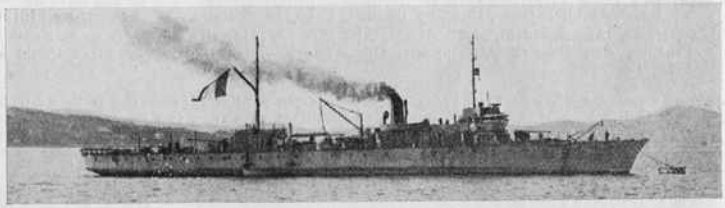
**Luronne* has two Fiat type Diesel engines of 325 B.H.P., total H.P. 650, which are reported to have given a speed of 13·8 k'ts. She is employed as tender to the training establishment for boy artificers at Lorient.

1921 *Copyright Photo, M. Bar, Toulon.*

ETOURDI (Lorient D.Y., 1916).
DÉDAIGNEUSE (Bordeaux, 1916).
TAPAGEUSE (Port de Bouc, 1916).

Displacement: 265 tons. Dimensions: 197½ × 23½ × 9½ feet. Guns: 2—3·9 inch, 1—3 pdr. *or* 1 M.G. Carry D.C. Machinery: Reciprocating. I.H.P.: 1,200 = 15 kts. Du Temple or Normand boilers. Fuel: 85 tons coal = 3,000 miles at 10 kts., 1,600 miles at full speed. Complement: 65.

Notes.—Note that masts are stepped well to starboard of the centre-line. *Moqueuse* wrecked, 1923. *Curieuse* condemned, 1926. *Belliqueuse* and *Emporté*, 1927. *Malicieuse* and *Eveillé*, 1932. *Inconstant* 1933. *Agile*, *Alerte*, *Ardent*, *Capricieuse*, *Sans Souci*, 1935: *Batailleuse* and *Impetueuse*, 1937: *Gracieuse*, 1938; *Audacieuse*, 1939.
Etourdi differs from remainder of class, displacing 310 tons, with armament of 2—5·5 inch and 1—3 inch AA. H.P. 1500=16·5 kts.



YSER (*Marne* has 2 funnels.) 1920, *Photo, M. Bar, Toulon.*

MARNE (Lorient D.Y., Nov., 1916).
SOMME (Brest D.Y., March, 1917).
YSER (Rochefort D.Y., Jan., 1917).

Rated as *Avisos, 2e classe*

Though the design of these Despatch Vessels is uniform, the latitude allowed to the building yards has resulted in differing appearances.

Displacement, 576 tons (*Marne* 601 tons). Dimensions: 256 (*o.a.*) × 29¼ × 11 feet. Armament: 4—3·9 inch, 2—65 m/m. in all. Designed I.H.P.: 4,000 = 20·5 kts. (5,000 = 21 in *Marne*). Machinery: 2 sets geared turbines. Boilers: 2 du Temple. 2 screws. Oil fuel: 135 tons, 145 tons in *Marne*. Radius: 4,000 miles at 10 kts. Complement: 107. All built under 1916 War Programme.

Note.—*Aisne*, *Meuse*, *Oise*, scrapped, 1938. Others to be discarded later.

Photo wanted.

8 *Ch. de Normandie* (*Fécamp*) : **CH 41** (May 1, 1939), **CH 42, CH 43, CH 44, CH 45, CH 46** (all 1939), **CH 47, CH 48** (both 1940). Built under 1937 Programme (except last pair, 1938). Wood. Displacement : 126 tons. Dimensions : 136 × 17 × 8½ feet. Guns : 1—3 inch. M.A.N. Diesel engines. 2 shafts. B.H.P. : 1,100 = 16 kts. Specially designed for alternative use with Seaplanes.

Photo wanted.

4 *Ch. Worms* : **CH 13, CH 14, CH 15, CH 16.** (1939.)

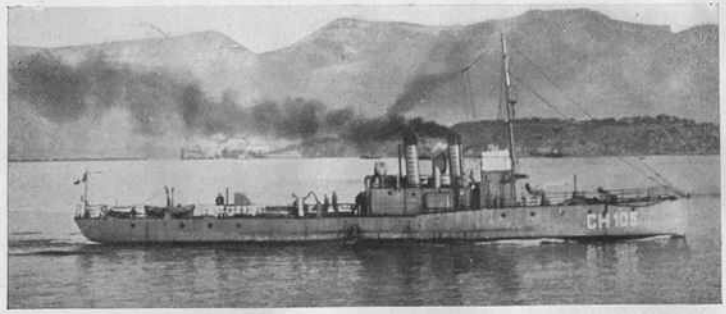
4 *At. et Ch. de France* : **CH 9, CH 10, CH 11, CH 12.** (1939.)

7 *F. et C. de la Mediterranée* : **CH 5** (April 3, 1939), **CH 8** (1939), **CH 17, CH 18, CH 19, CH 20, CH 21** (all 1940). *CH* 5—16 ordered under 1937 Programme ; *CH* 17—21 under 1938. Steel. Displacement : 107 tons. Dimensions : 121½ × 16½ × —— feet. Guns : 1—3 inch. M.A.N. Diesels. 2 shafts. B.H.P. : 1,100=16 kts.

Note.—*CH* 11 and 15 are serving with Polish Navy. *CH* 6 and 7 lost in October, 1940.

CH 3. 1936, *M. H. le Masson.*

4 *Ch. Bretagne* type : **CH 1, CH 2, CH 3, CH 4.** All launched at Nantes, 1934. Standard Displacement : 148 tons. Dimensions : 157½ × 17¾ × 5½ feet. Guns : 1—3 inch, 2 M.G. Depth charges carried. Sulzer-Diesels in CH 1 and 3, M.A.N. in CH 2 and 4. B.H.P. : 2,400 = 20 kts. Are fitted for mine-sweeping. On Trials CH 1 averaged 22·5 kts. with 2,624 H.P., others doing as well or better. All exceeded 20 kts. with ¾ power.



1930 *Photo.*

Note.—Funnels are slightly staggered, the foremost being to port and after one to starboard of the centre-line.

3 *Normand type* boats : **CH 106** (Normand, Le Havre, 1918–21). **CH 107** and **CH 115** (respective builders unknown).* 128 tons. Dimensions: 136½ (*p.p.*), 142 (*o.a.*) × 17½ × 8½ feet (*max. draught*). Guns : 1—3 inch, 2 M.G. Designed I.H.P. 1300 = 16·5 kts. Triple expansions engines. 2 Normand boilers. Coal : 24 tons, except in *CH* 107, 28 tons. Complement, 32. Contract for 2 other boats with Normand cancelled 1918. *CH* 101 swamped and sunk off Spanish Coast, December, 1920.

*Built by Chantiers de la Loire, Nantes, Chantiers Dubigeon, Nantes.

Note.—Former *CH* 111 and *CH* 112 have been given respective names of *Commandant Bourdais* and *Avalanche* and adapted for service as river gunboats in Indo-China.

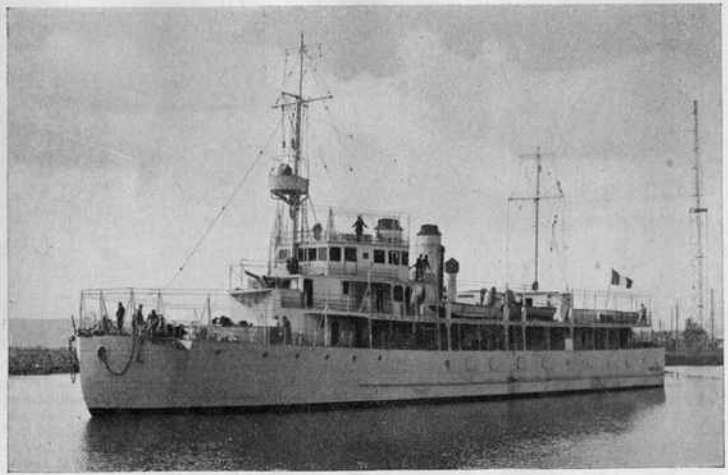
1920 *Photo, H. Freund, Brest.*

6—100 *foot type* : **C 25, 51, 56, 74, 95, 98.** Built by U.S. Navy Yards and smaller shipbuilding firms, 1917–18, for U.S. Navy as *SC5—SC*404, but contracts transferred to French Government. *Designed* displacement : 54 tons. *Standard* figure, 60 tons. Dimensions : 105 (*p.p.*), 110 (*o.a.*) × 15½ × 7½ feet (*maximum* draught). Machinery : 3 sets of 220 B.H.P. Standard petrol motors, totalling 660 B.H.P. = 17 kts. Petrol : 2,400 gallons = 900 miles at 10 kts. Armament : 1—3 inch (14 pdr.) field gun converted to naval mounting, but some have one of smaller calibre. Carry depth charges. Complement : 19.

C 96 lost December, 1931, *C* 91 sunk by bombs from Spanish aircraft in October, 1937. Many others scrapped. *C* 58, *C* 81 still exist, but have been relegated to harbour service.

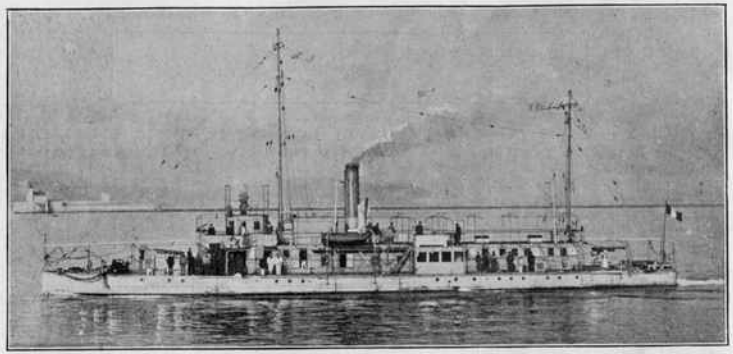
MYTHO. 1934, *Courtesy of Mons. H. Le Masson.*

MYTHO, TOURANE (Saigon, 1933). Displacement: 95 tons (*Standard*). Complement: 16. Dimensions: 114¾ × 17½ × 3 feet. Guns: 1—3 inch Howitzer (Army pattern), 1—37 mm., 2 M.G. Machinery: 2 Diesels. H.P.: 250 = 10 kts. Radius: 560 miles at 10 kts.



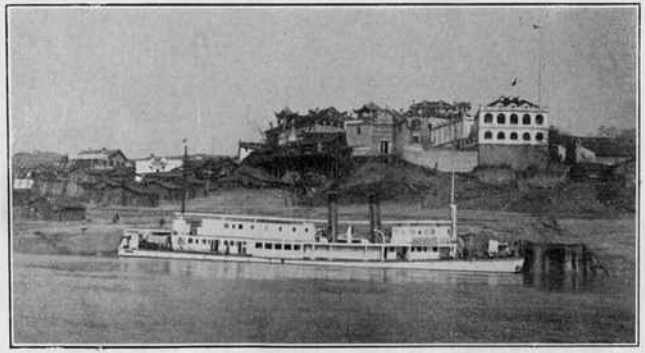
FRANCIS-GARNIER. 1930 *Photo, by favour of M. Henri Le Masson.*

FRANCIS-GARNIER (Dec. 7, 1927). River Gunboat, for Lower Yangtse, ordered 1926 from Chantiers Navals Français, Blainville. Displacement, 639 tons. Complement, 103. Dimensions: 196¾ × 33¾ × 7½ feet. Guns: 2—4 inch, 1—3 inch AA, 2—1 pdr., 4 M.G. 2 sets triple expansion, H.P. 3200=15 kts. 2 Du Temple boilers. Oil fuel: 100 tons. Completed in 1929.



VIGILANTE. 1924 *Photo, A. Dussau, Toulon.*

ARGUS, VIGILANTE (1922, Toulon, D.Y.). 218 tons. Dimensions: 170 (*o.a.*) × 25½ × 4 feet (*max.*). Guns: 2—3 inch, 2—37 m/m., 4 M.G. I.H.P.: 550 = 12 kts. 2 screws and 2 boilers. Bullet-proof plating over conning position and W/T cabinet. Ammunition carried: 300 rounds per 3 inch, and 50,000 cartridges. Complement: 42.



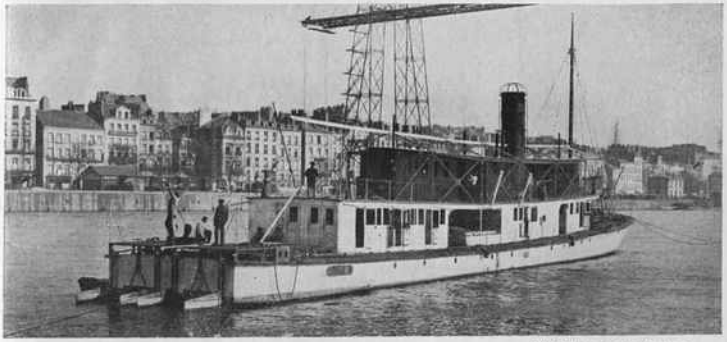
BALNY. *Photo added* 1927, *courtesy M. Henri Le Masson.*

BALNY (1920). Built by Chantiers de Bretagne, Nantes. 201 tons. Dimensions: 167¾ × 23 × 4½ feet. Guns: 1—3 inch, 2—1 pdr., 4 M.G. Reciprocating engines. H.P.: 920 = 14 kts. 2 Foucbé w.t. boilers. Coal: 45 tons. Complement: 49.

River Gunboats—*continued.*

AVALANCHE (ex-*C.112*), **COMMANDANT BOURDAIS** (ex-*C.111*). (1921). 128 tons. Dimensions: 142 × 17 × 8¼ feet. Guns: 1—3 inch, 2 M.G. Triple expansion engines. I.H.P.: 1,300 = 16·5 kts.

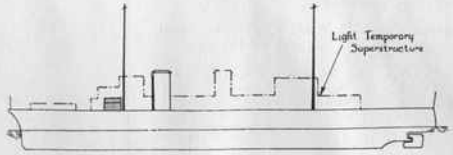
Note.—Ex-submarine chasers adapted for present service in Indo-China. Appearance as illustration on an earlier page.



1920 *Photo, Ch. de Bretagne.*

DOUDART DE LAGRÉE (1909). 183 tons. Dimensions: 167½ × 22½ × 4½ feet. Guns: 1—3 inch (field type), 2—37 mm., 4 M.G. Reciprocating engines. H.P.: 900 = 14 kts. 2 Fouché w.t. boilers. Coal: 45 tons. Complement: 59. Built by Chantiers de Bretagne, Nantes.

Target Ship



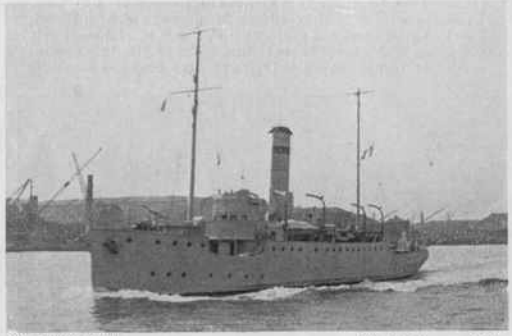
IMPASSIBLE.

IMPASSIBLE (Lorient, June 17, 1939). Displacement: 2,450 tons. Dimensions: 328 × 39½ × 13 feet. S.H.P.: 10,000 = 20 kts. Ordered, Feb., 1937, under 1936 Programme, and laid down, May 23, 1938. To be controlled by wireless. Complement, 46.

Submarine Depot Ship.

Photo 1932, *Official.*

JULES VERNE (Lorient, Feb. 3, 1931). Displacement: 5,747 tons. Complement: 259. Dimensions: 377½ (*p.p.*). 400½ (*o.a.*) × 56½ × 19 feet. Guns: 4—3·5 inch AA., 4—37 mm. AA., 9 M.G. 2 sets Sulzer-Diesels. 2 shafts. B.H.P.: 7,000 = 16 kts. Equipped for the supply and maintenance of a flotilla of 6 submarines, with accommodation for their personnel, numbering 265, in addition to ship's own complement.



Q. ROOSEVELT. 1937 *M. Davenport, Esq.*

QUENTIN ROOSEVELT (ex-*Flamant*, Rochefort D.Y., December, 1916). Despatch Vessel of 585 tons. Dimensions: 154 × 27½ × 14½ feet. Guns: 1—3 inch., 1—3 pdr. I.H.P. 1100 = 13 kts. Coal: 100 tons = 1500 miles at 10 kts. Complement, 53. Was begun 1913, stopped 1914-16 and completed April, 1918.

Note.—Escort vessel *Ville d'Ys* and patrol vessel *Ailette*, recorded on earlier pages, were also employed on Fishery Protection duties.

Fishery Protection Vessels.

FAUVETTE II, PASSEREAU II (1916). 315 tons. Dimensions: 131½ (*p.p.*), 142¾ (*o.a.*) × 24 × 12 feet. No Guns. I.H.P.: 500 = 10 kts. Coal: 120 tons. Complement, 23. Rated as *Patrouilleurs.*

1935.

PRIMEVÈRE (1912). 490 tons. Dimensions: 116 × 22 × 14 feet. No Guns. H.P. 450 = 8·5 kts. 1 screw. Coal: 30 tons. Rated as a *Patrouilleur.*

Surveying Vessels.

Usually commissioned for the six months April—November, and reduced to Reserve during other six months of the year.

Notes.—3 patrol vessels, *Dubourdieu*, *Les Eparges* and *Ypres*, employed on this service, will be found on other pages.

Authorised but not begun.

BENGALI, CORMORAN, GOELAND, IBIS, MOUETTE, PELICAN. Of a new Type. Authorized under 1938 Programme to replace 6 oldest existing Surveying Vessels. Probably of similar design to Minesweepers of *Elan* class.

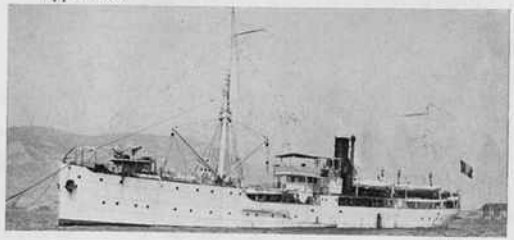
1937, *Capt. M. Adam.*

AMIRAL MOUCHEZ (Aug. 3, 1936). Laid down at Cherbourg, Jan. 1935. Displacement: 719 tons. Dimensions: 203½ × 33¾ × 11 feet. Guns: 1—3 inch. (In war time, provision is made for mounting 2—3.9 inch). 1 Sulzer Diesel. B.H.P.: 800 = 12 kts. Complement: 81.

Surveying Vessels—*continued.*

Added 1940, *courtesy*, "*The Motor Ship*"

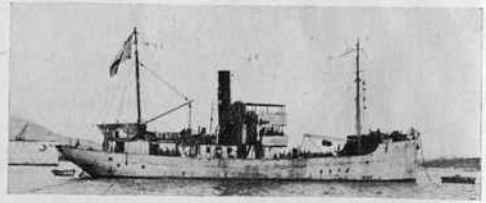
PRESIDENT THEODORE TISSIER (Ch. Worms, 1933), (Taken over by Navy in 1938). Displacement: 965 tons. Dimensions: 166 × 29 × 16 feet. Machinery: M.A.N. Diesel, 7 cyl., single stroke, 4 cycle. B.H.P.: 800 = 11 kts. Fuel: 250 tons. Has a remarkable radius, equal to 100 days continuously at 10 kts. Equipped with modern deep sea sounding apparatus.



1935.

LAPÉROUSE (launched 21st November, 1919). 781 tons. Dimensions: 196⅞ (*p.p.*) × 27¾ × 17¾ feet. Guns: 1—3 inch AA. Triple expansion engines. I.H.P.: 1,100 = 11 kts. 2 w.t. boilers. Oil: 132 tons. Complement, 104. Ex-Navy Transport of the *Coëtlogon* class, built at Brest D.Y., and lengthened when transferred to surveying service. Reboilered in 1938.

Surveying Vessels—*continued.*



1921 *Photo, M. Bar.*

ASTROLABE (ex-*Mouviette*), **GASTON RIVIER** (ex-*Ortolan*), **OCTANT** (ex-*Pivert*), **ESTAFETTE** (all 1918), **SENTINELLE** (1920). 315 tons. Dimensions: 142¾ × 24 × 13 feet. Guns: 1—47 mm. I.H.P.: 450 = 10 kts. Coal: 120 tons. Complement: 32.

CHIMÈRE (ex-*Zelée*, ex-*Huron*) (1901). Ex-Tug of 613 tons. Guns: 1—3·9 inch. I.H.P.: 880 = 14 kts.

Aircraft Tenders.

Note.—The patrol vessel *Belfort* and the small transport *Hamelin* (described on other pages) are also fitted for service as Aircraft Tenders, their official rating being *Ravitailleurs d'Aviation*.

Probably destroyed on stocks.

SANS SOUCI, SANS PAREIL, SANS PEUR, SANS REPROCHE (ex-*Sans Crainte*). Building under 1937 Programme. All laid down Aug., 1938, first pair by At. et Ch. de la Loire, second pair by Penhoët. Displacement: 1,172 tons. Guns: 1—3 inch. Machinery: Sulzer Diesels. Speed: 15 kts.

1938, *Official*

PÉTREL Nos. 1, 2, 3, 4, 5, 6, 7, 8 (1932–33). Displacement: 80 tons. Dimensions: 87 × 14⅝ × 3 feet. Machinery: Diesel. H.P.: 270 = 11·5 kts. Stationed at various points around the coast.

Auxiliaries.

A large number of armed merchant cruisers and armed boarding steamers were commissioned for escort duties, etc. Photos published in the Press indicate that most of the armed merchant cruisers are liners of moderate size, such as those built for the mail service in the Mediterranean.

Oilers (*Transports Pétroliers*).

SAONE, SEINE, LIAMONE, MEDJERDA. Laid down by At. et Ch. de France, Dunkerque, under 1938 Programme. Displacement: 19,250 tons (*full load*), 14,800 tons *deadweight*. Cargo capacity: 11,000 tons. Dimensions: 525¾ × 72 × — feet. Machinery: Parsons geared turbines. S.H.P.: 14,750 = 18 kts. Rated as *Petroliers Rapides*.

Note.—The hulls of these vessels were destroyed prior to the evacuation of the port, but particulars are retained in this issue for purposes of reference.

PHOTO WANTED

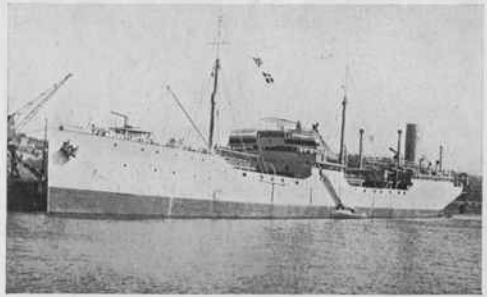
ADOUR (Oct. 9, 1938), **LOT** (June 19, 1939), **TARN** (Sept., 1939), **CHARENTE, MAYENNE, BAISE.** *Adour* built by Stè. Provencale des Constructions Navales, La Ciotat, next pair by At. et Ch. de France, Dunkerque, other three ordered from Ch. Worms, Le Trait. Displacement: 4,220 tons; 7,400 tons *deadweight*. Dimensions: 433 × 52½ × 20¾ feet. Guns: 2—3·9 inch. Machinery: Parsons geared turbines. H.P.: 5,200 = 15 kts. Radius: 10,000 miles at 13–14 kts. Provided for under 1936, 1937 and 1938 Programmes, and rated as *Ravitailleurs d'Escadre*. Last three will probably never materialise.

1935, *Capitaine M. Adam.*

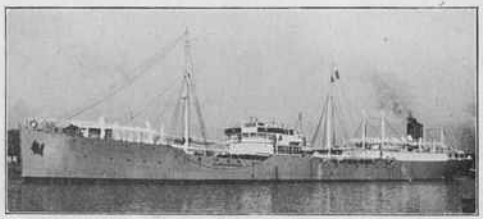
NIVÔSE. (Deutsche Werft A.G., Hamburg, 1931). Purchased in 1934. Displacement: 8,500 tons *standard*, 14,160 tons deadweight. Dimensions: 467 × 62 × 28¾ feet. Guns: 2—3·9 inch, 2—37 mm. AA. Machinery: Quadruple expansion. 1 shaft. I.H.P.: 3,400 = 11 kts. Capacity for 14,500 tons.

PHOTO WANTED

ETHYLENE (July 8, 1937). Displacement: 1,950 tons, 1,200 tons *deadweight* capacity. Dimensions: 202 × 40 × — feet. H.P.: 900 = 10·5 kts. (Rated as *Batiment de Servitude*.)



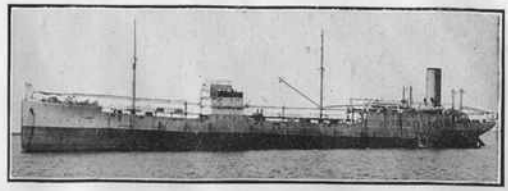
VAR (ELORN similar). 1932 *Photo, Capt. M. Adam.*



LE MÉKONG. 1929 *Photo by favour of M. Henri le Masson.*

VAR (1931), **ELORN** (1930). Both built by Deutsche Werft A.G., Hamburg, on War Reparations account.

LE MÉKONG, by Ch. & At. de St. Nazaire (Penhoët) (Aug. 31, 1928). Displacement: 5,482 tons *standard*; 15,150 tons *full load*. Dimensions: 436½ (*pp.*), 456 (*o.a.*) × 61¾ × 26 feet *mean* draught. Guns: 2—3·9 inch, 2—1 pdr. 2 sets Burmeister & Wain Diesel engines. B.H.P.: 4,850 = 13·5 kts. (6,000 on trials). Capacity of tanks: 33,900 cubic metres. Deadweight: 9,600 tons, of which oil fuel absorbs 9,000; distilled water, 500; lubricating oil, 100. Complement: 76.



1928 *Photo, R. Perkins.*

LE LOING (At. & Ch. de la Seine Maritime, Le Trait, 4th April, 1927). Displacement: 3,481 tons *standard*; 9,900 tons full load. Dimensions: 503½ × 50½ × 25 feet. Guns: 2—3·9 inch, 2—3 inch AA. 2 sets 4-cycle single-acting Diesel engines by Burmeister & Wain. H.P.: 4,100 = 13·5 kts. (exceeded on trials). Carries 5,900 tons oil. Constructed on Isherwood system. Complement, 70.

DROME. 1921 *Photo, H. Freund.*

DROME (ex-*Aube*), (July, 1920), **DURANCE** (1920), **RANCE** (July, 1921), all by Lorient D.Y. 1,055 tons. Complement, 70. Dimensions: 242¾ × 38 × 15¾ feet. Guns: 2—3 inch AA. Machinery: Breguet turbines. S.H.P.: 1,000 = 10 kts. Radius: 1,580 miles at 10 kts. Capacity for 1,500 tons of oil.

1921 *Photo, H. Freund.*

DORDOGNE (ex-*San Isidoro*, Armstrong, 1914). Displacement, 7,333 tons. 15,160 tons D.W. Carries 13,000 tons oil. Dimensions: 530 × 66½ × 29 feet. Guns: 2—6·1 inch. H.P. 4,150 = 11·7 kts. Refitted in 1937.

Oilers.—*continued.*

1920 *Photo, H. Freund.*

GARONNE (1911). 3,533 tons. Dimensions: 394 × 50¾ × 27½ feet. Guns: 2—3·9 inch. H.P. 2,600 = 11 kts. Carries 5,800 tons oil as cargo. Complement, 65.

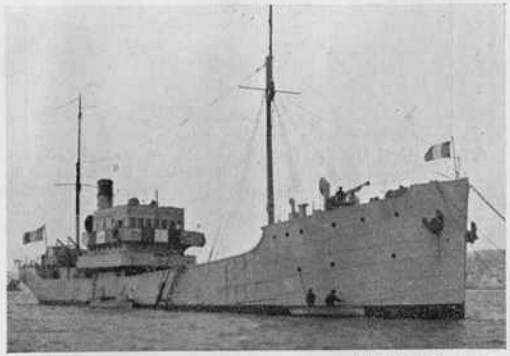
(Now painted light grey.) 1931 *Photo*

RHÔNE (1910). 2,785 tons. Dimensions: 369 × 45 × 25 feet. H.P.: 2,100 = 11 kts. Carries 4,000 tons oil as cargo. Complement: 57.

Transports, Supply Ships (*Soutiens d'Escadre*) **and Refrigerator Ships** (*Navires Frigorifiques*).

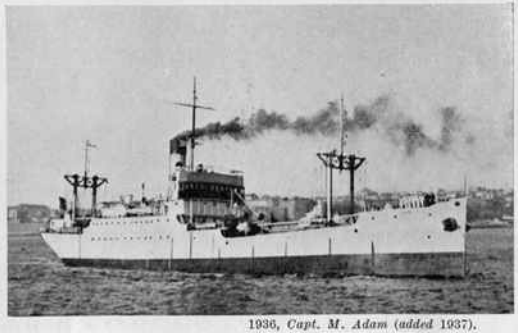
1935, *courtesy Mons. H. Le Masson.*

GOLO (F. & C. de la Gironde, Bordeaux, July 8, 1933). Displacement: 2,118 tons *standard*; deadweight capacity: 1,300 tons. Dimensions: 274¾ (*p.p.*), 294½ (*o.a.*) × 44½ × 15¾ feet. Guns: 2—3 inch, 2—37 mm. AA. Machinery: 2 Burmeister & Wain Diesels by Penhoët. B.H.P.: 1,850 = 12·5 kts. (13 kts. on trials.) Has Yourkevitch special hull form.



AUSTRAL 1938, *Capt. M. Adam.*

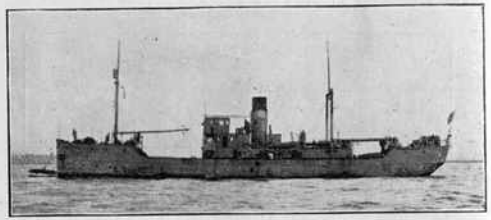
AUSTRAL (ex-*Léon Poret*), **BOREAL** (ex-*Remy-Chuinard*), (La Ciotat, 1927). Purchased 1937, and converted into Refrigerator Ships. Displacement: 2,270 tons. Dimensions: 208 × 33½ × 15 feet. Guns: 1—3 inch. Machinery: Triple expansion. H.P.: 1,200 = 12·5 kts. Oil fuel.



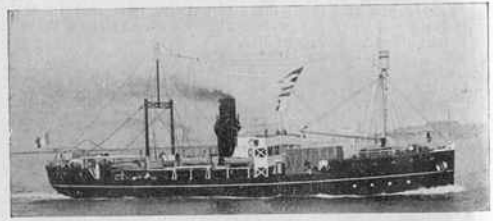
1936, *Capt. M. Adam* (*added* 1937).

AUDE (ex-*Chateau Lafite*). (Ch. de la Seine Maritime, 1924). Displacement: 1,820 tons. Deadweight capacity: 3,360 tons. Dimensions: 279¾ × 39½ × 20½ feet. Machinery: Triple expansion. I.H.P.: 1,700 = 10 kts.

CHAMPLAIN (April, 1919). Refrigerator transport, built by Brest Dockyard. 521 tons. Complement: 40. Dimensions: 167½ × 26½ × 13¾ feet. Guns: 1—3 inch. H.P.: 1,100 = 10 kts. Coal: 80 tons.



FORFAIT. 1927 *Photo, H. Freund*



COËTLOGON. 1930 *Photo, M. Bar.*

COËTLOGON (June, 1919), **FORFAIT** (1920), **HAMELIN*** (1920), by Ch. de Bretagne, Nantes. 622 tons. Dimensions: 168 × 26 × 17 feet. Guns: 2—3·9 inch, 1 M.G. I.H.P.: 1,200 = 12 kts. Triple expansion engines. 1 screw. 2 cylindrical boilers. Coal: 80 tons. 850 miles endurance.

* Usually employed as seaplane tender.

JEANNE ET GENEVIÈVE (1917). 620 tons. Dimensions 147 × 24 × 12½ feet. Guns: 1—3 inch. I.H.P.: 600 = 11 kts.

Transports de Personnel

POULMIC. 1939, *Captain M. Adam.*

LANVEOC, POULMIC (F. et C. de la Mediterranée, Graville, 1937). Displacement: 350 tons. Dimensions: 121½ × 26½ × 10 feet. Diesel engine. H.P.: 540 = 12 kts.

Fleet Tugs

(All fitted with reciprocating engines.)

Photo Wanted

BUFFLE (May 4, 1939). Laid down 1936 by A. & C. de Bretagne. Displacement: 1,115 tons. Complement: 32. Dimensions: 167½ × 33 × — feet. Machinery: 2 sets Triple expansion. I.H.P.: 2,000 = 12 kts.

Photo wanted.

ACTIF, APPLIQUÉ, ATTENTIF, CÉPET, COTENTIN, CHAMPION, TÉBESSA. All laid down 1937–38, *Actif* by Ch. de la Loire, Nantes, *Tébessa* by F. & C. de la Méditerranée, La Seyne, *Cépet* and *Cotentin* by Ch. Dubigeon, Nantes, others by F. & C. de la Gironde, Bordeaux. Displacement: 672 tons. Dimensions: 114¾ × 27¾ × —— feet. Machinery: Triple expansion. I.H.P.: 1,000 = 11 kts.

Fleet Tugs—*continued.*

VALEUREUX (1930). Of similar type to *Actif* class.

FORT, TENACE (1933). Displacement: 600 tons. H.P.: 1,000 = 13 kts.

LABORIEUX (1930). Displacement: 876 tons. I.H.P.: 2,000 = 11 kts.

SIX-FOURS (1920). Displacement: 590 tons. I.H.P.: 1,500 = 10 kts.

CANARD (1918), **FAISAN** (1919), **PAON** (1918), **PIGEON** (1918). Displacement: 767 tons. I.H.P.: 800 = 11 kts.

HIPPOPOTAME (1918), **MAMMOUTH** (1918), **MASTODONTE** (1919), **RHINOCÉROS** (1918). Displacement: 954 tons. I.H.P.: 1,800 = 12 kts.

ATHLETE (1918), **LUTTEUR** (1919). Displacement: 590 tons. I.H.P.: 750 = 9 kts.

HERON II ((1918). Displacement: 667 tons. I.H.P.: 850 = 10·5 kts.

PINGOUIN, PINTADE (1917). Displacement: 700 tons. I.H.P.: 700 = 10 kts.

RAMIER (1917). Displacement: 685 tons. I.H.P.: 750 = 10 kts.

NESSUS (1913). Displacement: 590 tons. I.H.P.: 1,500 = 12 kts.

SAMSON (1906). Displacement: 650 tons. I.H.P.: 1,000 = 11 kts.

GOLIATH (1903). Displacement: 1,127 tons. I.H.P.: 1,450 = 11 kts.

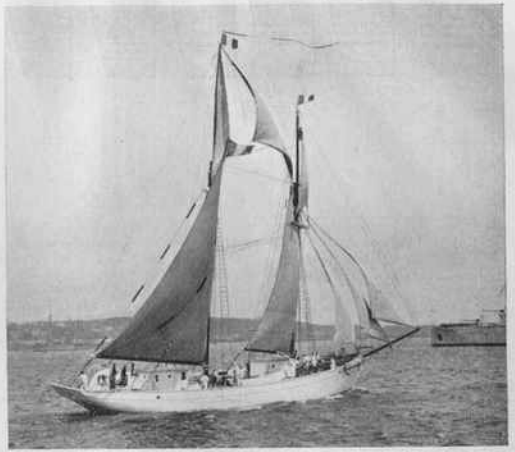
CYCLOPE (1901). Displacement: 650 tons. I.H.P.: 1,000 = 13 kts.

Trawlers and Drifters

A large number of these have been requisitioned or otherwise acquired by the French Navy, mainly for minesweeping duties (*Dragueurs Auxiliaires*). Only the following 7 names have been communicated officially: **CAP BEAR, CAP CARTERET, CAP COURONNE, CAP D'ANTIFER, CAP FERRAT, CAP FREHEL, CAP NEGRE.** All were purchased abroad in 1939.

Sailing Vessels.

(Used for training purposes)



L'ETOILE 1936, *M. Le Masson.*

LA BELLE-POULE, L'ÉTOILE. Both built by Chantiers de Normandie (Fécamp), 1932. Displacement: 227 tons. Dimensions: 128 (*o.a.*) × 23¾ × 11¾ feet. Accommodation for 3 officers, 30 cadets, 5 petty officers, 12 seamen. Machinery: Sulzer-Diesels. B.H.P.: 120 = 6 kts.

ZÉLÉE (purchased 1931). 197 tons. Dimensions: 151 × 29½ × 10 feet. Auxiliary Diesel. B.H.P.: 90 = 7 kts. Guns: 1—3 pdr. For service in Oceania and Tahiti.

ALOUETTE (1929). 44 tons. Dimensions: 60 × 20½ × 10 feet.

MESANGE (1921). 60 tons. Dimensions: 56¾ × 21½ × 10 feet.

MUTIN (1927). 54 tons. Dimensions: 66½ × 20 × 10¾ feet.

GERMANY

Chief of Admiralty: Grossadmiral Dr. (h.c.) E. Raeder.

Uniforms.

INSIGNIA OF RANK ON SLEEVES

NOTE.—In above sketch, a *star* should replace devices which appear in the 5 junior ranks.

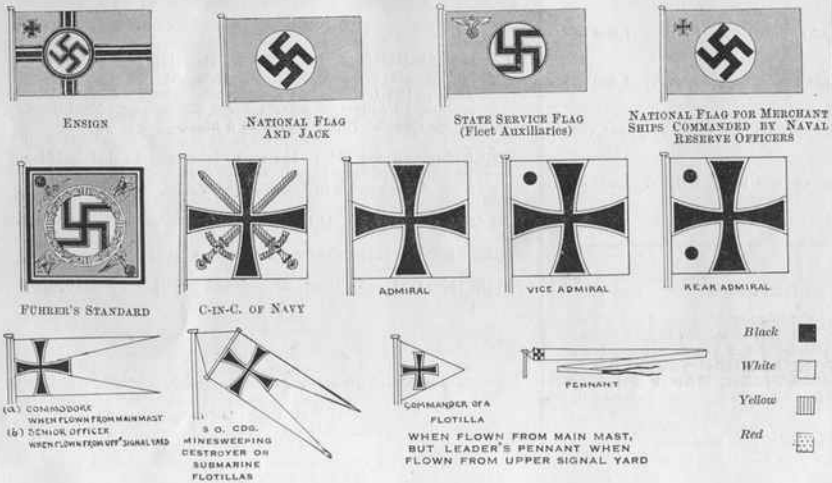
Uniforms and distinguishing marks of rank are the same for officers of all branches of the service; but in place of the star on the sleeve, which distinguishes the military branch, there is worn by:

Engineer Officers, a pinion wheel
Medical Officers, the rod of Æsculapius } As in sketches above.
Accountant Officers, the winged staff of Hermes

The difference between a *Kapitän zur See* and a *Fregattenkapitän* is indicated by stars on the shoulder straps.

Kommodores wear the same sleeve stripes as a *Kapitän zur See*, but with the cords and shoulder bands of a Flag Officer.

Flags.



Naval Guns.

Calibre	Usual Naval Designation.	Length in cals.	Date of Model.	Weight of Gun.	Weight of A.P. shot.	Initial Velocity.	Maximum penetration, direct impact against K.C. at 9000 yds.	Maximum penetration, direct impact against K.C. at 6000 yds.	Maximum penetration, direct impact against K.C. at 3000 yds.	Danger space against average ships at 10,000 yds.	Danger space against average ships at 5000 yds.	Danger space against average ships at 3000 yds.	Approximate Muzzle Energy.
inch.	c/m.			tons.	lbs.	foot-secs.	in.	in.	in.	yards.	yards.	yards.	foot tons.
15	*38·1*	...	'36	...		...	...	...	...	...	...	...	...
11	*28*		'28		670								
11	*28*	40	'01	32·2	661·4	2756	6	10	14	150	450	740	31,600
8	*20.3*												
5·9	*15*	50	...	5·5			...	...	...	...	...	...	6,690
5.9	*15*	45	'09	5	101·4	3084	...	...	...	...	...	...	5,990
5	*12.7*					2920	...	...	5	...	200	420	
4·1	*10·5*	45	'16	...	38·2	...	...	...	...	...	...	...	...
4·1	*10·5*	50	'28										
4·1	*10·5*	A.A.											
3·5	*90*	A.A.											

Brass cartridge cases to all guns.

11 inch, 40 cal., M. '01 in *Schlesien* and *Schleswig-Holstein*.

Lesser guns: 3·4 inch (88 m/m) firing 22 lb. projectiles in modern and 15 lb. in old models.

AA. guns: 4·1 inch, 3·5 inch on H.A. mounts ("Flak").

Projectiles: Guns of 11 inch and over fire A.P., Ersatz A.P., H.E., and common shell.

All models have the recoil utilized to return the gun to firing position for pieces over 5.9 inch. In 5.9 in. springs are employed. German guns have a lower muzzle pressure than normally obtains.

Personnel.

Total personnel, 1938, 75,000 officers and men. (Since increased)

Colour of Ships.

Light Grey, *except* Sail Training Ships, which are white with yellow superstructures.

Mercantile Marine.

(From "Lloyd's Register." 1939 figures.)
2,466 vessels of 4,492,708 gross tonnage.

Navy Estimates.

Later figures not communicated.

1930-31, 191,597,200 marks
1931-32, 191,855,550 ,,
1932-33, 187,339,400 ,,
1933-34, 186,243,200 ,,

GNEISENAU
SCHARNHORST.

ADMIRAL HIPPER *class*.

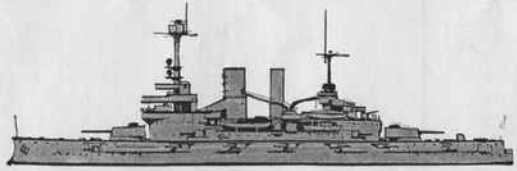
LEIPZIG
(Mainmast now taller and a different type of crane fitted.)

NÜRNBERG.
(Mizzenmast since added and funnel modified.)

LÜTZOW.
(Now has cinder screen to funnel.)

KÖLN.

ADMIRAL SCHEER.



SCHLESIEN.
SCHLESWIG-HOLSTEIN.

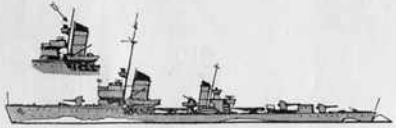
EMDEN.

G 7. 8. 10. 11.
(T 23 similar but no Torpedo Tubes.)

C. van Bevern.

T 196.

E. Jungmann *class*.



Wolf *Class*.
(Möwe *Class* as part sketch.)

Beitzen *Class*.

K. Galster.

Tanga.

Erwin Wassner.

Isar, Lech.

Grille.

Saar.

Tsingtau.

Brummer.

Bremse.

Königin Luise, Hai, F 1, F 2, F 4, F 5, F 7—10.

"M" *Class.*
(JAGD, PELIKAN and others, no mainmast.)

M 1–36

ELBE, WESER.

MEMEL.

NAUTILUS *Type.*
(Also FRAUENLOB with taller mainmast.)

NETTELBECK.

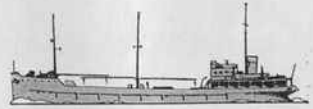
METEOR.

LAUTING *class.*

FUCHS.

DRACHE.

PAUL BENEKE.

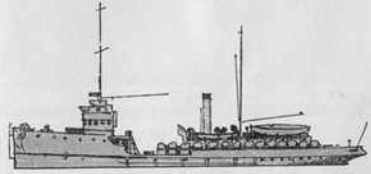


MOSEL.

HAVEL.

NORDSEE.

STRAHL.



M.T. 1, 2.
(Now have AA. gun on fo'c'sle.)

SUNDEVALL.

GAZELLE.

TRAWLERS
(vary in details.)

WEICHSEL.
(DONAU similar but with different bow.)

U 1 *Class.*
(Coastal type.)

U 27 *Class.*
(Medium type.)

U 45—55.
(Medium type.)

U 25, 26.
(Oceangoing type.)

U 37—44.
(Oceangoing type.)

Bismarck Class—4 ships.

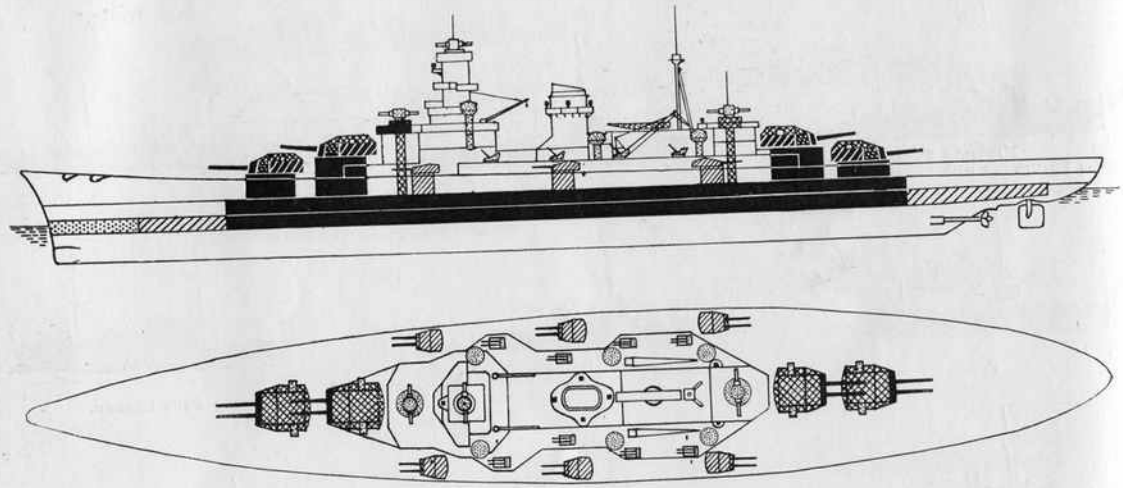
BISMARCK (Feb. 14, 1939), **TIRPITZ** (April 1, 1939), "**H**" and "**I**" (building).

Standard displacement: 35,000 tons. Complement:
Length (*w.l.*), 792½ feet. Beam, 118 feet. Draught, 26 feet (*mean*).

Guns:
8—15 inch
12—5·9 inch
16—4·1 inch

Aircraft:
4, with 2 catapults.

Armour:
Not reported.



Machinery: Geared turbines. 2 shafts. High pressure water-tube boilers. Designed speed: Probably 30 kts.

Name.	*Builder.*	*Laid down.*	*Completed.*
Bismarck	Blohm & Voss	1936	1940
Tirpitz	Wilhelmshaven	1936	
H	Blohm & Voss	1937	
I	Wilhelmshaven	1938	

Notes.—Apparently *Bismarck* was to have had a straight stem, and *Tirpitz* one of the overhanging type, but both are likely to be completed with latter. It has been reported that the second pair may be 40,000-ton ships, but confirmation of this is lacking. Unofficial reports suggest that these two ships will be named *Friedrich der Grosse* and *Hindenburg*. Up to the beginning of the war, progress with the *Bismarck* and *Tirpitz* had been slow, very little of the side armour having been fitted; but it has since been reported that efforts were being made to complete the former in 1940.

GNEISENAU. Funnel cap since reduced in size, and mainmast moved to a position just abaft first catapult, where it is stepped as a tripod. 1939, *W. Schäfer.*

SCHARNHORST. *Added* 1940.

(Scharnhorst Class—2 ships)

SCHARNHORST (October 3, 1936).
GNEISENAU (December 8, 1936).

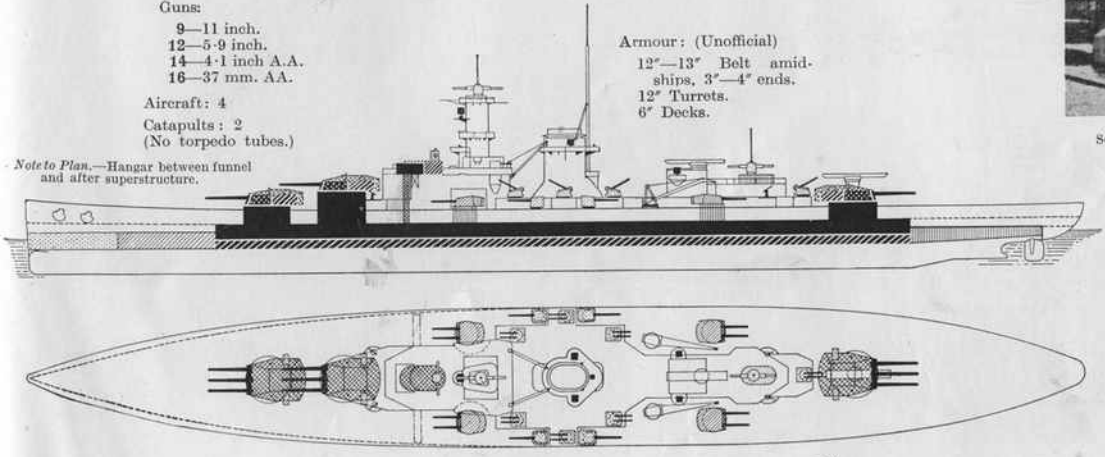
Standard displacement: 26,000 tons. Complement: 1,461.
Length (*w.l.*) 741½ feet. Beam, 98½ feet. Draught, 24⅞ feet (*mean*).

Guns:
9—11 inch.
12—5·9 inch.
14—4·1 inch A.A.
16—37 mm. AA.

Aircraft: 4

Catapults: 2
(No torpedo tubes.)

Armour: (Unofficial)
12″—13″ Belt amidships, 3″—4″ ends.
12″ Turrets.
6″ Decks.



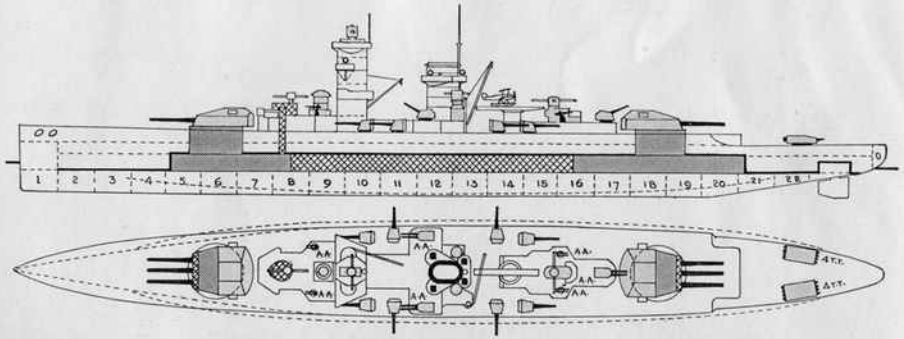
Note to Plan.—Hangar between funnel and after superstructure.

Machinery: Geared turbines, combined with Diesels for cruising speeds. 3 shafts. High pressure water tube boilers. Designed speed: 27 kts., considerably exceeded on trials. Actual speed believed to be over 29 knots.

Name.	*Builder.*	*Laid down.*	*Completed.*
Scharnhorst	Wilhelmshaven	1934	7 Jan., 1939
Gneisenau	Deutsche Werke	1934	21 May, 1938

General Notes.— Names commemorate those of 2 cruisers sunk at the Battle of the Falklands, Dec. 8, 1914.

Gunnery Notes.—11 inch calibre was accepted for these ships in order to allow a greater proportion of weight to protection.



Plan of ADMIRAL SCHEER.

LÜTZOW ex-*Deutschland* (May 19th, 1931).

ADMIRAL SCHEER (April 1st, 1933).

Note—Following alterations in appearance were effected in 1937. 2 new cranes have replaced the former one; a small deckhouse has been added at base of catapult; derrick posts have been cut down and S.L. rearranged on a platform around upper part of funnel. There is a pole mast on after director.

Standard displacement, 10,000 tons. Complement, 926.

Length, 593 (*w.l.*). 609½ (*o.a.*) feet. Beam, 67½ feet (*Deutschland*), 69½ (*Scheer*). Draught, 21⅔.

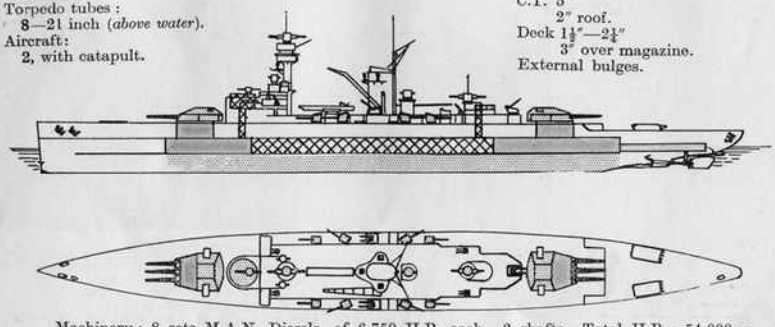
Guns:
6—11 inch.
8—5·9 inch.
6—4·1 inch AA.
8—3 pdr. AA.
10—M.G.

Torpedo tubes:
8—21 inch (*above water*).

Aircraft:
2, with catapult.

Note to Plan.—This relates only to *Lützow*. *Ad. Scheer* is as shown in separate plan.

Armour: (In *Scheer*, average thickness of armour is slightly less, but it is spread over a larger area.)
Belt—4″ with 1½″ internally.
Turrets: 4″ bases.
5½″ faces.
2—3″ sides.
C.T. 5″
2″ roof.
Deck 1½″—2¼″
3″ over magazine.
External bulges.



Machinery: 8 sets M.A.N. Diesels, of 6,750 H.P. each. 2 shafts. Total H.P.: 54,000 = 26 kts. Fuel: 1,200 tons. Radius: 10,000 miles at 15 kts.

General Notes.—These are the first ships of such size to have electrically welded hulls and to be propelled by Diesel engines. By these means a saving in weight of 550 tons is said to be effected. Are officially rated as "Armoured Ships" (*Panzerschiffe*), and popularly referred to as "Pocket Battleships." Actually, they are equivalent to armoured cruisers of an exceptionally powerful type. Cost £3,750,000 = £375 per ton.

Gunnery Notes.—The 11 inch guns are a new Krupp model, firing a 670 lb. projectile, with a range of 30,000 yards and an elevation of 60°.

Machinery Note.—8 sets compressorless double-acting two-stroke M.A.N. Diesels each of 6,750 B.H.P. at 450 r.p.m. Each group of four drives a single propeller shaft through Vulcan gear, which reduces speed to 250 r.p.m. Net weight of engines about 17·6 lb. per b.h.p. excluding Vulcan drive, shafting, propeller and air reservoirs. Total weight of whole plant about 48·5 lb. per b.h.p. Electrically welded plate framing employed for the first time. It is stated that Diesels have operated satisfactorily in service, without undue vibration or noise from exhaust; but unofficial reports suggest that they have not entirely answered expectations in these respects.

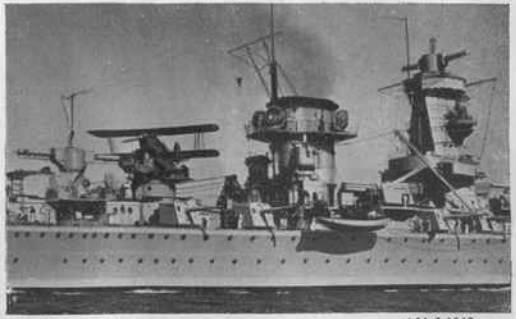
AD. SCHEER. 1935.

(*Additional photographs will be found on following page*)

Name.	*Builder.*	*Laid down*	*Completed.*
Lützow	Deutsche Werke	5/ 2/29	1/4/33
Ad. Scheer	Wilhelmshaven	25/ 6/31	12/11/34

(A third ship, the *Admiral Graf Spee*, scuttled herself to avoid action in the River Plate on Dec. 17, 1939.)

ADMIRAL SCHEER. *Added* 1940, *W. Schäfer.*

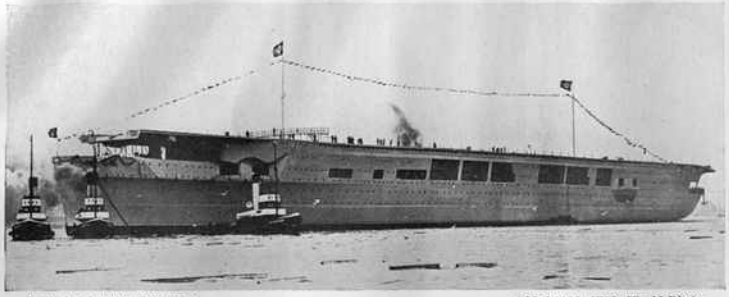


ADMIRAL SCHEER. *Added* 1940.

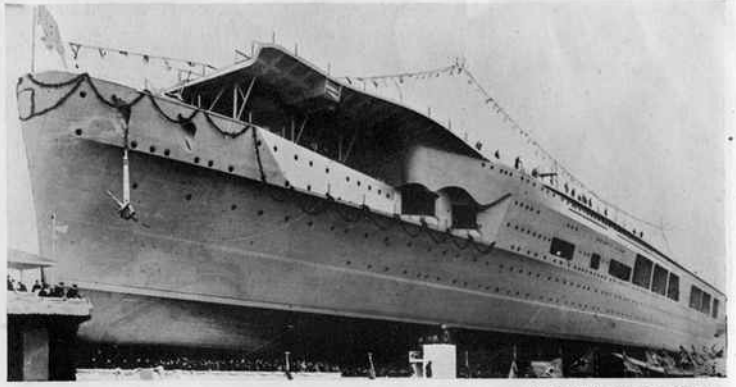
LÜTZOW 1938, *Schäfer.*

Aircraft Carriers.

(*Flugzeugträger.*)



Launch of GRAF ZEPPELIN. *Added* 1939, *Wide World Photos.*



Added 1940, *Wide World Photos.*

GRAF ZEPPELIN (Deutsche Werke, Kiel, Dec. 8, 1938) and **DEUTSCHLAND** (Germania, Kiel, Jan., 1940). Both laid down in 1936, under the Programme for that year. *Standard* displacement : 19,250 tons.

Length: 820½ feet. Beam : 88½ feet. Draught : 18½ feet (*mean*).

Guns :
16—5·9 inch
10—4·1 inch AA.
22—37 mm. AA.

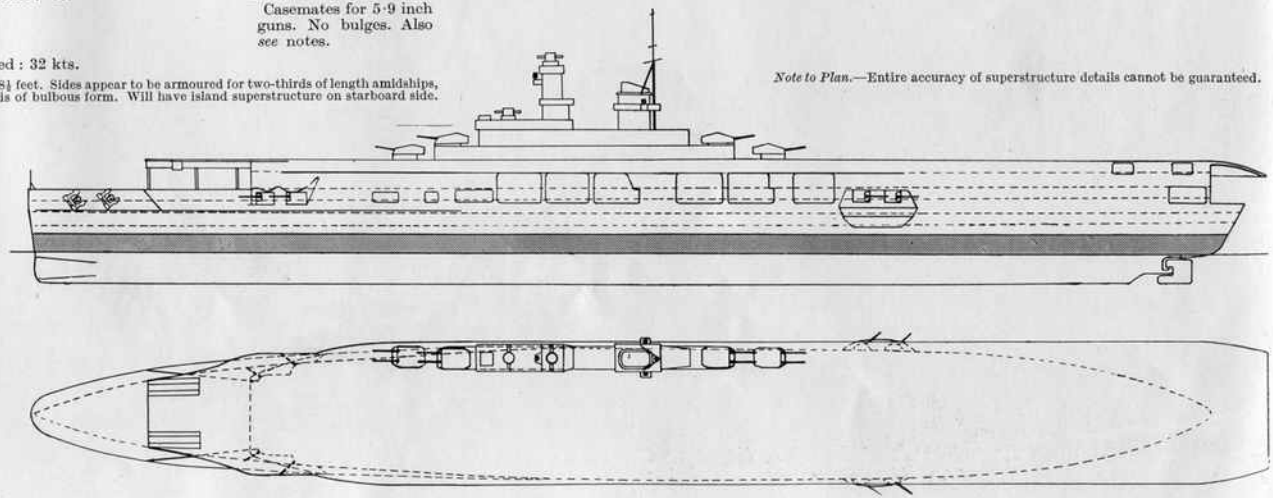
Aircraft : 40.

Armour :
Casemates for 5·9 inch guns. No bulges. Also *see* notes.

Machinery : Geared turbines. Speed : 32 kts.

Notes.—Flight deck reported to measure 790 × 88½ feet. Sides appear to be armoured for two-thirds of length amidships, and to a lesser extent as far as bow, which is of bulbous form. Will have island superstructure on starboard side.

Note to Plan.—Entire accuracy of superstructure details cannot be guaranteed.



(Hipper Class—4 Ships).

Hipper. 1939, *Dr. Erich Gröner.*

Hipper. 1939.

Hipper. 1939.

Hipper. *Added* 1940.

ADMIRAL HIPPER (Feb. 6, 1937), **PRINZ EUGEN** (Aug. 22, 1938), **SEYDLITZ** (Jan. 19, 1939), *ex*-**LUTZOW** (July 1, 1939). *Standard* displacement: 10,000 tons. Complement: 830.

Dimensions: $639\frac{3}{4} \times 69\frac{3}{4} \times 15\frac{1}{2}$ feet (*Hipper*); others, $654\frac{1}{2} \times 71 \times 15$ feet.

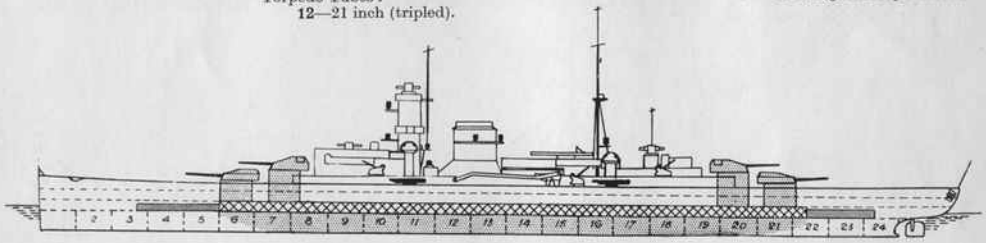
Guns:
8—8 inch, 55 cal.
12—4·1 inch AA.
12—37 mm. AA.

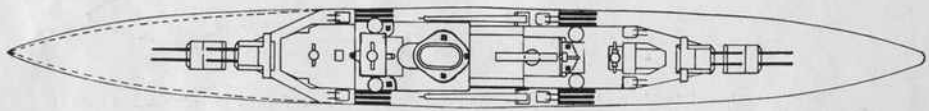
Torpedo Tubes:
12—21 inch (tripled).

Aircraft: 4.

Catapult: 1.

Armour:
5″ Vert. Side (Unofficial).
2″ Bridge
2″ Rangefinder positions.





Machinery: Geared turbines, with Diesels for cruising speeds. 4 shafts. High pressure water-tube boilers. S.H.P.: 80,000 = 32 kts.

Notes.—Hangar is between funnel and mainmast. Internal arrangements of these ships reported to be decidedly cramped and badly ventilated. *Blücher*, of this type (completed Aug., 1939), was sunk by mines in Oslo Fjord after being disabled in action with Norwegian forts, April 9, 1940. Ex-*Lutzow* is rumoured to have been sold to Soviet Government.

Programme	*Name*	*Builder*	*Laid down*	*Completed*
1935	*Hipper*	Blohm & Voss	1935	29.4.39
1936	*Prinz Eugen*	Germania	1936	*To be* 1940-41
	Seydlitz	Deschimag		
	Lützow	do.		

"M", "N", "O" and **"P".** *Standard* displacement: 8,000 tons. (Also reported as 7,300 tons.) Dimensions: 561 (*pp.*), 584 (*o.a.*) × 62 × 15¾ feet. Guns: **12**—5·9 inch, **4**—4·1 inch AA., **8**—37 mm., **6** smaller. Torpedo tubes: **8**—21 inch. **2** Aircraft. **1** Catapult. Machinery: Geared turbines, with Diesels for cruising speeds. S.H.P.: 80,000 = 32 kts. First pair laid down in 1938; second pair begun early in 1939. Two may be completed by end of 1940. Respective builders believed to be Deutsche Werke, Germania, Wilhelmshaven and Deschimag.

NÜRNBERG (Now has cinder screen to funnel) 1936, *Renard.*

NÜRNBERG (Deutsche Werke, Kiel, Dec. 8, 1934.)
Standard Displacement: 6,000 tons. Complement: 656.
Dimensions: 557¾ (*p.p.*), 603 (*o.a.*) × 54 × 14¼ feet (*mean* draught).

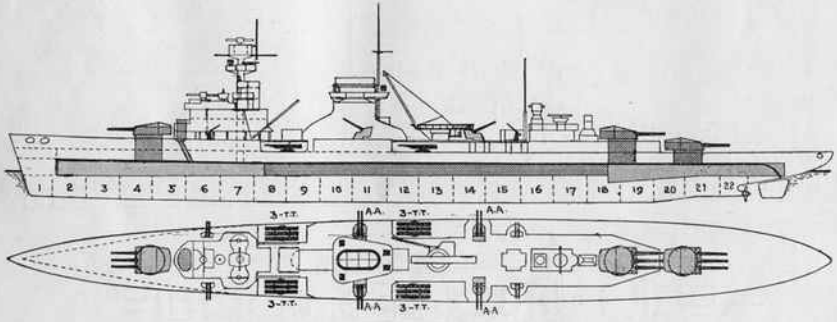
Guns:
- **9**—5·9 inch, 50 cal.
- **8**—3·5 inch AA.
- **8**—3 pdr. AA.
- **4** M.G.

Torpedo Tubes:
- **12**—21 inch, *above water* (tripled).

Aircraft:
- **2**, with catapult.

Armour:
- 3″—4″ Vert. Side.
- 2″ Gunhouses.
- 3″ C.T.

Side armour is more extensive than in *Leipzig*, both horizontally and vertically but average thickness is slightly less.



Machinery: Geared turbines. S.H.P.: 60,000, with Diesels of 12,000 B.H.P. for cruising. Speed: 32 kts. 3 shafts. Boilers: 6 Marine type.

Other details understood to be generally similar to *Leipzig*, of which she is a slightly improved edition. Laid down early in 1934 and commissioned at beginning of November, 1935.

NURNBERG. 1938, *Ferd. Urbahns.*

LEIPZIG (Wilhelmshaven, Oct. 18, 1929).

Standard Displacement: 6,000 tons.

Dimensions: 544 (*p.p.*) 580 (*o.a.*) × 53½ × 15¾ ft.

Complement: 615.

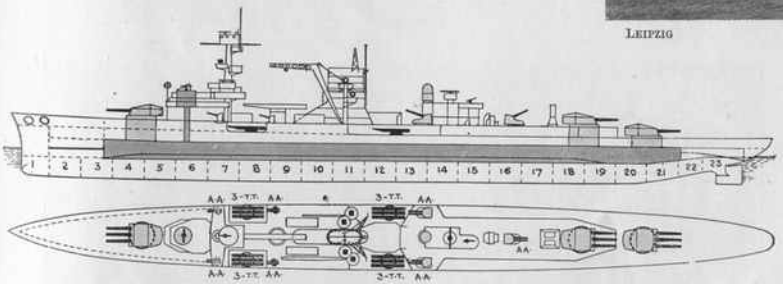
Guns:
9—5·9 inch, 50 cal.
8—3·5 inch, AA.
8—3 pdr. AA.
4 M.G.

Torpedo tubes:
12—21 inch, *above water* (tripled).

Aircraft:
2, with catapult.

Armour:
3″—4″ Vert. Side.
2″ Gun houses.
2″ C.T.

Note to Plan.—2 extra 3·5 inch A.A. guns have since been mounted.



Machinery: Geared turbines, 60,000 S.H.P. with Diesel engines of 12,000 B.H.P. Speed: 32 kts. Triple screws (centre—system "Helix"). Boilers: 6 "Marine" type (modified Schulz-Thornycroft), double-ended oil burning. Centre shaft Diesel driven: can be used for cruising or combined with turbines to give full speed. Radius of action with Diesel engines at 14·5 kts: 3,800 miles; with turbines at 14·5 kts.: 3,200 miles=7,000 miles. Radius could be greatly augmented if all bunkers were filled with Diesel fuel only, but this would reduce speed at full power. Fuel: 1,200 tons + 378 tons Diesel fuel.

Machinery Notes.—Variable pitch propeller on inner shaft, which "feathers" when Turbines only are used. Under Diesels alone, wing shafts are spun by 500 b.h.p. motors through spur gearing from centre shaft, thus obviating loss of 3,000 b.h.p. if they were allowed to turn idly. Plant is four 7-cyl. M.A.N. two-stroke double-acting compressorless Diesels. Engine speed=600 r.p.m. Four engines to each shaft, through Vulcan hyd. clutches and reducing gear, giving shaft speed of 400 r.p.m. Weight of machinery, including scavenging blower and its driving engine, and auxiliaries to propelling plant=12·1 lb per b.h.p. (5·5 kg.). Turbines are Germania type.

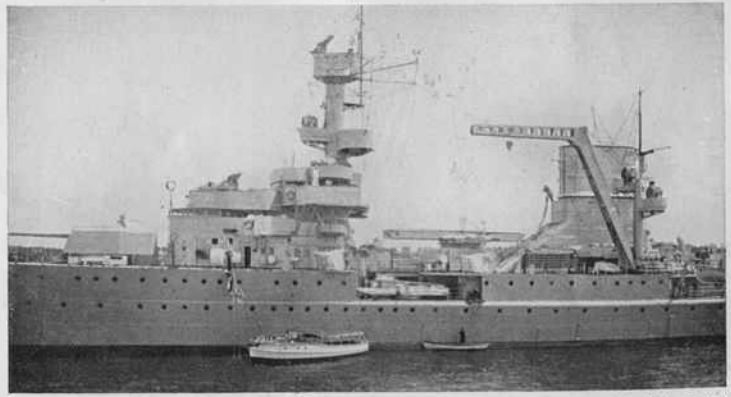
General Notes.—Laid down at Wilhelmshaven April 18th, 1928. Completed in 1931. Modification of *Köln* design with after turrets in centre-line and uptakes trunked into one funnel: fitted below water-line with bulges which are to be filled with oil fuel and are designed to improve speed lines rather than to act as a means of protection.

LEIPZIG

Added 1940, *Associated Press.*

Special Note.

This cruiser may have been lost, as a torpedo fired by H.M.S. *Salmon* in Dec., 1939, is believed to have hit her.



(A different type of crane has since been fitted, as shown in upper photo.)

1935, *courtesy "Taschenbuch der Kriegsflotten."*

GERMANY—Cruiser

KÖLN (May 23rd, 1928).

Displacement, 6000 tons. Complement, 571.

Length, 554 feet 5½ inches (*w.l.*), 570 feet (*o.a.*),

Beam, 49 feet 10½ inches.

Designed draught, 17 feet 9 inches.

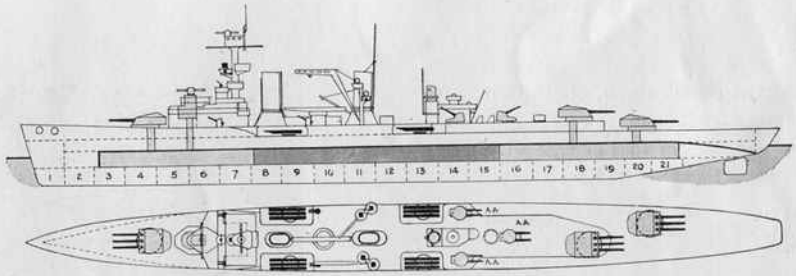
Guns :
- 9—5·9 inch, 50 cal.
- 6—3·5 inch AA.
- 8—3 pdr. AA.
- 4 M.G.

Armour :
- 3"—4" Vert. Side
- 2" Gun Houses
- 3" C.T.

Torpedo tubes :
- 12—21 inch, *above water*, tripled.

Aircraft : 2, with catapult.

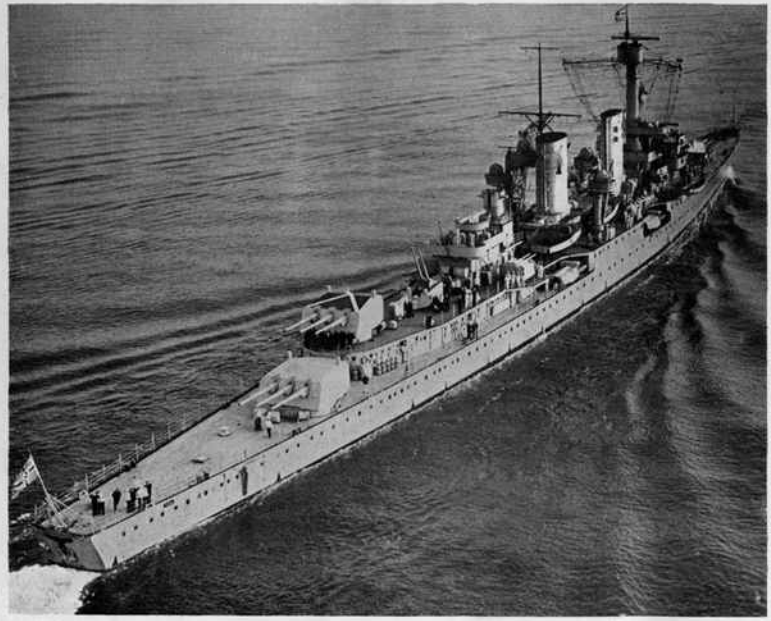
Machinery : Geared turbines, with 10 cyl. 4-stroke Diesel engines for cruising purposes. Boilers: 6 Schulz-Thornycroft. Designed H.P. : 65,000 = 32 kts. Fuel : 1,200 tons oil + 300 tons Diesel fuel. Radius : at 14 kts., 5,500 miles ; at 10 kts., 10,000.



General Notes.—Every possible expedient for saving weight was employed in this ship. A very high grade of steel was selected, and electric welding took the place of riveting. Laid down at Willielmshaven, Aug. 7, 1926, and completed in Jan., 1930. Two sister ships, *Karlsruhe* and *Königsberg*, have been lost.

Gunnery Notes.—3—5·9 inch can fire simultaneously at rate of 6 salvoes a minute, and range to 20,000 yards. Disposition of after turrets is governed by arrangement of ammunition handling rooms.

Engineering Notes.—Designed horse-power of turbines is 63,000, and of Diesels, 2,000.



KÖLN. *Added 1940, Central Press.*

KÖLN. *Added 1940, courtesy "News Chronicle."*

EMDEN (Wilhelmshaven, 7th January, 1925).

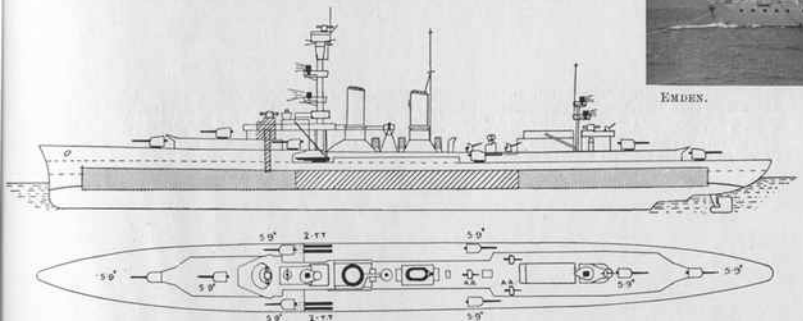
Standard displacement, 5,400 tons. Complement, 534.

Dimensions: 493¾ (*w.l.*), 508½ (*o.a.*) × 47 × 17½ feet (*mean* draught), 21 feet (*max.*).

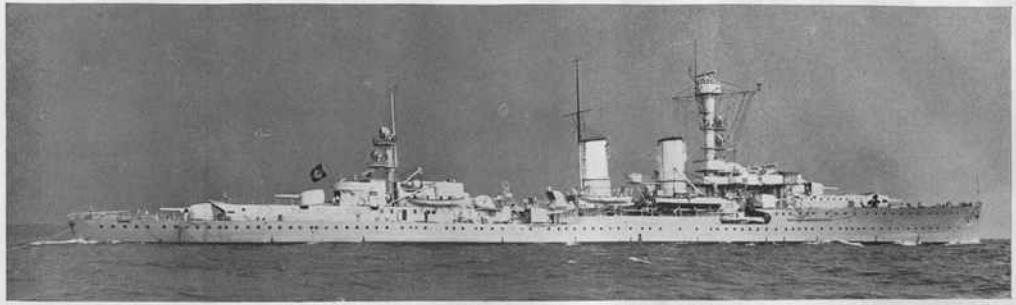
Guns:
8—5·9 inch 45 cal.
3—3·5 inch AA.
4—M.G.

Torpedo tubes:
4—19·7 inch (*above water*).

Armour:
3″—4″ Vert. Side .....
2″ Gun Houses .....
3″ C.T.



Machinery: Geared turbines. Boilers: 10 Schulz-Thornycroft "Marine" type (Converted to oil-burning 1934). Designed H.P. 46,500 = 29 kts. Oil fuel: 1,260 tons.



EMDEN. 1937, *Renard.*

Engineering Notes.—Designed to maintain a speed of 27·5 kts. in fair weather. Revs. per minute: 2435 H.P. turbines. 1568 L.P. turbines, geared down to 295 R.P.M. on propellers. On trials designed speed was slightly exceeded with 46,500 H.P.

General Notes.—The tubular foremast is about 5 feet in diameter. Masting modified and second funnel heightened, 1926–27. *Emden* was designed for foreign service, particular attention being paid to accommodation. Laid down in December, 1921, commissioned 15th October, 1925. Since used as sea-going training ship for cadets.

Destroyers.

(*Built or completing under* 1938–39 *Programmes*).

Z 23—Z 39. Displacement: 1,870 tons. Dimensions not reported. Armament believed to be the same as in *Karl Galster*, in adjoining column. Other particulars probably similar. No information as to dates of launching or completion. Builders Deschimag, Deutsche Werke, Germania and Blohm & Voss.

K. GALSTER 1939 *Schäfer.*

Karl Galster (1938). Built by Deschimag, Bremen, under 1936 Programme. Displacement: 1,811 tons. Dimensions: 384 × 38 × 9½ feet. Guns: 5—5 inch, 4—37 mm. AA., 4—20 mm. AA. Tubes: 8—21 inch (quadruple). Machinery: Geared turbines. S.H.P.: 55,000 = 36 kts. Completed March 21, 1939, and is the only survivor of a class of six, the other five having been sunk at Narvik in April, 1940. Pendant No. is painted on sides as shown in photo.

Destroyers—*continued*

10 Beitzen Class.

T. RIEDEL. 1937, *Renard.*

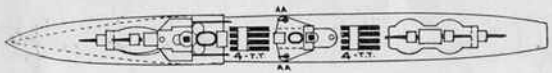
F. IHN. *Added* 1940, *Renard.*

2 *Deutsche Werke :* ***Georg Thiele, Richard Beitzen*** (both 1935).

4 *Germania:* ***Paul Jacobi, Theodor Riedel, Hermann Schoemann, Bruno Heinemann,*** (All 1936)

1 *Deschimag :* ***Hans Lody*** (1936).

3 *Blohm & Voss :* ***Friedrich Ihn*** (1935), ***Erich Steinbrinck*** (1936), ***Friedrich Eckoldt*** (1937).



Standard Displacement : 1,625 tons. Complement : 283. Dimensions : 374 × 37 × 9¼ feet.
Guns : **5**—5 inch, **4**—37 mm. AA., 4—20 mm. AA. Tubes : **8**—21 inch, quadrupled.
Machinery : Geareu turbines. S.H.P : 50,000 = 36 kts. High pressure watertube boilers.

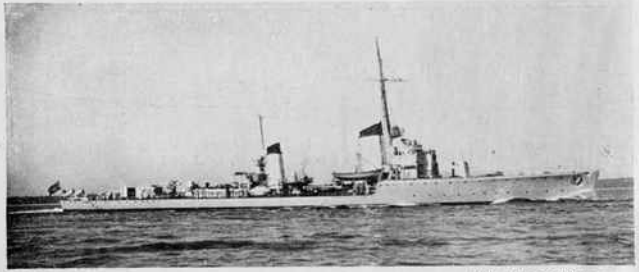
Note.—Notable feature of these torpedo craft is the first appearance in German flotillas of quadruple torpedo tubes. First of class were laid down in autumn of 1934, latest in autumn of 1935. All authorised under 1934 Programme, and completed by end of 1938 or early 1939. Pendant Numbers, *R. Beitzen*, 11 ; *G. Thiele*, 13 ; *P. Jacobi*, 21 ; *T. Riedel*, 22 ; *H. Schoemann*, 23 ; *E. Steinbrinck*, 31 ; *F. Eckoldt*, 32 ; *F. Ihn*, 33 ; *H. Lody*, 82 ; *B. Heinemann*, 63. The first figure in each case refers to the flotilla, the second to position of ship therein. Six ships of this class were lost during 1939–40.

Torpedo Boats.

30 boats : ***T1—T18*** (1938–39), ***T19—30*** (building). (Seven launched during 1938, *T*11 in March, 1939, and *T*13 on June 15, 1939). *Standard* displacement : 600 tons. Dimensions : 267 × 28½ × 6½ feet. Guns : **1**—4·1 inch, **2**—37 mm. Tubes : **6**—21 inch (tripled). Speed : 36 kts. First 12 laid down 1936. Some building by F. Schichau, Elbing, others by Deschimag, Bremen, under 1935–1938 programmes.

LUCHS. 1939, *Renard, Kiel.*

6 *Wilhelmshaven Yard :* ***Iltis, Wolf*** (both Oct. 12th, 1927), ***Jaguar, Leopard, Luchs, Tiger*** (all March, 1928). Laid down 1927. Standard Displacement : 800 tons (1,000 tons deep load). Dimensions : 292 (*p.p.*), 304 (*o.a.*) × 28 × 9 feet. Guns : 3—5 inch, only in *Leopard, Luchs* : **3**—4·1 inch in others ; and in all, **2**—1 pdr. AA. T.T. : **6**—21 inch (tripled parallel). Designed S.H.P. : 25,000 = 34 kts. Geared turbines and Schulz-Thornycroft boilers. Oil fuel : 330 tons. Complement : 123. Are of same general type as *Möwe* class, with minor improvements. *Jaguar* employed as Gunnery School Tender.



FALKE. 1939, *Dr. Erich Gröner.*

6 *Wilhelmshaven Yard:* ***Möwe*** (March 4th, 1926), ***Albatros, Greif, Seeadler*** (all three July 15th, 1926), ***Falke, Kondor*** (both Sept. 22nd, 1926). Standard Displacement : 800 tons (960 tons deep load). Dimensions : 277½ × 27½ × 9½ feet draught. Guns : **3**—4·1 inch, 50 cal., **2**—1 pdr. AA. T.T. : **6**—21 inch (tripled parallel). Geared turbines. 3 Schulz-Thornycroft boilers. Designed S.H.P. 24,000 = 33 kts. (exceeded on trials). Oil fuel : 320 tons. Complement, 121.

Notes.—Laid down under 1924 and 1925 Programmes, as *W* 102-107. *Möwe* commissioned October 1st, 1926, others passed into service during 1927, replacing old destroyer *T* 175 and the worn-out torpedo boats of *T* 149 type. Have longitudinal framing and double bottom to hull. Guns said to elevate to 80°. The cost of these vessels was extraordinarily high, working out at about £215 per ton. It is possible that *Albatros* may have been sunk, it being reported that her name has been conferred on another ship.

Identification letters, painted on bows : AT, *Albatros* ; FE, *Falke* ; GE, *Greif* ; IT, *Iltis* ; JE, *Jaguar* ; KO, *Kondor* ; LP, *Leopard* LU, *Luchs* ; MÖ, *Möwe* ; SE, *Seeadler* ; TG, *Tiger* ; WL, *Wolf*.

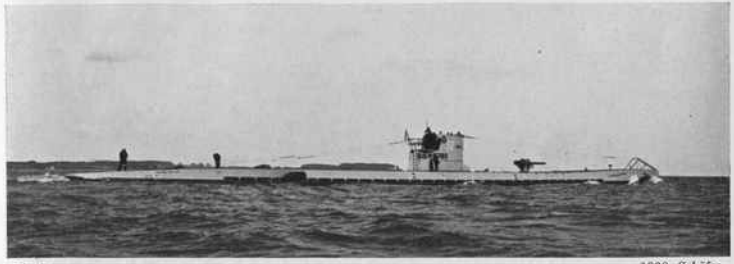
WOLF and MÖWE types.
Möwe has pointed stern.

Special Note.

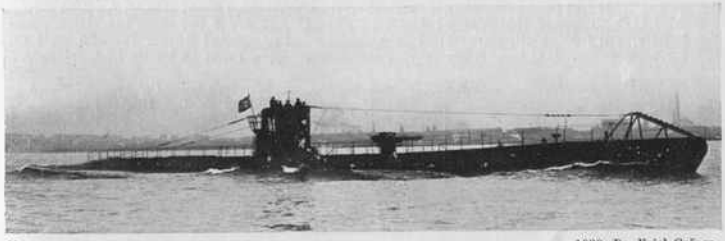
A large number of the Submarines listed here have been destroyed since September, 1939. A great many more have, of course, been built or laid down during the same period, but details of these are not yet obtainable.

Oceangoing types.

U 77, U 78 (1939). Displacement: 1,060 tons. Dimensions: 275½ × 27¾ × 12¾ feet. Armament: 1—4·1 inch, 45 cal., 2—1 pdr. AA., 2—21 inch tubes (bow). Fitted for minelaying. H.P.: 3,600/1,100 = 18·5/8 kts.



U 37 — 1938, *Schäfer.*



U 41 — 1939, *Dr. Erich Gröner.*

U 37—44 (Deschimag, 1938), ***U 64—68*** (1939), ***U 79—82*** (1940), ***U 88—92*** (1940). Displacement: 740 tons. Complement: 40. Dimensions: 244½ × 20½ × 13½ feet. Armament: 1—4·1 inch 45 cal., 2—1 pdr. AA., 6—21 inch tubes (4 bow, 2 stern). H.P.: 3,200/1,000 = 18·5/8 kts.

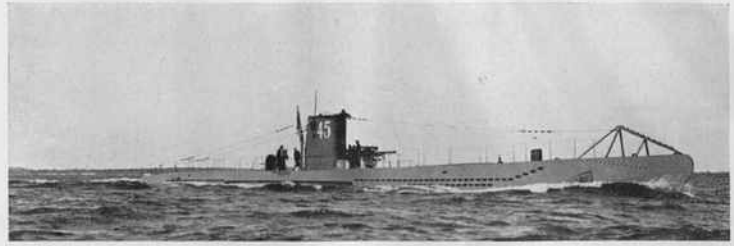
Notes.—*U* 37 completed Aug. 4, 1938; *U* 38, Oct. 24, 1938; *U* 39, Dec. 10, 1938. These vessels may be minelayers.

U 25 — 1936, *Schäfer.*

U 25 (Feb. 14, 1936), ***U 26*** (March 14, 1936). Built by Deschimag, Bremen. Standard displacement: 712 tons. Complement, 40. Dimensions: 233 × 20½ × 13½ feet. Armament: 1—4·1 inch 45 cal. gun, 1—1 pdr. AA.; 6—21 inch tubes (4 bow, 2 stern). H.P.: 2,800/1,000 = 18/8 kts.

Notes.—Both laid down in 1935, under programme for that year. Commissioned April 6 and May 11, 1936, respectively, and reported to have reached 20 kts. on trials.

Seagoing types.



1938, *Schäfer.*

U 45—55. (Germania, 1938, ***U 69—76*** (1939), ***U 83—87*** (1939), ***U 93—99*** (1940). Displacement: 517 tons. Complement: 35. Dimensions: 213½ × 19½ × 13 feet. Armament: 1—3·5 inch, 1—1 pdr. AA., 5—21 inch tubes (4 bow, 1 stern). H.P.: 2,100/750 = 16·5/8 kts. First 7 laid down early in 1937, others begun by end of year. *U* 45 commissioned June 25, 1938; *U* 46, Nov. 2, 1938; *U* 47, Dec. 7, 1938; *U* 51, Aug. 6, 1938; *U* 52, Feb. 4, 1939; *U* 53, June 24, 1939.

U33 — 1936, *Schäfer.*

U 32. — 1937, *Schäfer.*

U 27 to ***U 36*** (1936). Standard displacement: 500 tons. Complement, 35. Dimensions: 206¾ × 19¼ × 13 feet. Armament: 1—3·5 inch, 1—1 pdr. AA.; 5—21 inch tubes (4 bow, 1 stern). H.P.: 2,000/750 = 16·5/8 kts.

Notes.—Laid down under 1935 and 1936 Programmes and completed during 1936–37. *U* 33—36 built by Germania, *U* 27—32 by Deschimag.

No.	*Launch*	*No.*	*Launch*
U 27	12/8/36	*U* 32	25/2/37
U 28	14/7/36	*U* 33	11/6/36
U 29	29/8/36	*U* 34	17/7/36
U 30	8/4/36	*U* 35	29/9/36
U 31	25/9/36	*U* 36	4/11/36

Coastal types.

U 16. 1936, *Renard, Kiel.*

U 59. 1939 *Schäfer.*

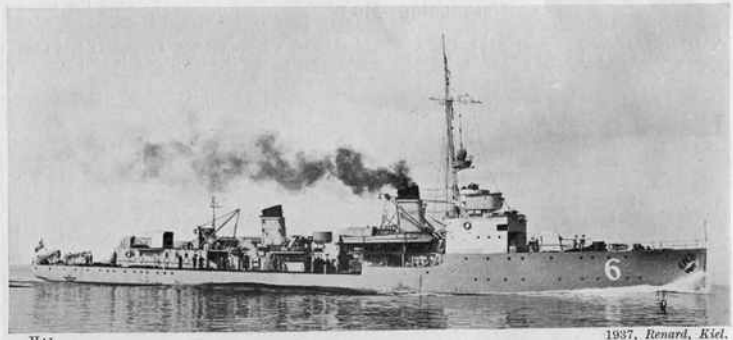
U 1 to **U 12**, **U 14** to **U 24** (1935–36), **U 56** to **U 63** (1938). *Standard* displacement: 250/330 tons. Complement: 23. Dimensions: 136½ × 13 × 12¾ feet. Armament: 1—1 pdr. AA., 3—21 inch torpedo tubes. H.P.: 700/360 = 13/7 kts. Diving limit reported to be 50 fathoms.

Appearance Note.—Of those so far reported, identification numbers are painted in *black* on C.T. of U 1—6, and in *white* on C.T. of later boats

No.	Builder	Begun	Launch	Comp.
U 1	Deutsche Werke, Kiel	1935	15/6/35	1935
2			1/7/35	
3			19/7/35	
4			31/7/35	
5			14/8/35	
6			21/8/35	
7			29/6/35	
8			16/7/35	
9			30/7/35	
10	Germania, Kiel.		13/8/35	
11			27/8/35	
12			11/9/35	
14	Deutsche Werke	1935	28/12/35	1936
15			15/ 2/36	
16			28/ 4/36	
17	Germania	1935	14/11/35	1936
18			7/12/35	
19			21/12/35	
20			14/ 1/36	
21	Deschimag, Bremen	1936	13/ 7/36	
22			29/ 7/36	
23			28/ 8/36	
24			24/ 9/36	
56	Deutsche Werke	1938	26/11/38	
57			29/12/38	
58			4/2/39	
59			39	
60			39	
61			15/6/39	
62			39	
63			39	

U 18 sunk by collision, Nov. 1936, but was salved shortly afterwards. U 13 sunk by Royal Navy, 1940.

Escort Vessels
(Geleitboote)



Hai 1937, *Renard, Kiel.*

F 1, F 2, KÖNIGIN LUISE (ex-*F 3*), **F 4, F 5, HAI** (ex-*F 6*). **F 7, F 8, F 9, F 10,** *Standard* displacement: 600 tons. Complement: 124. Dimensions: 241 (*pp.*), 249½ (*o.a.*) × 28¾ × 8½ feet (*mean* draught). Guns: 2—4·1 inch, 50 cal.; 4—37 mm. A.A., 2—1 pdr. AA. Also D.C. Throwers. Machinery: Geared turbines. S.H.P.: 9,000 = 28 kts. High pressure boilers. Oil fuel. Built under 1934 Programme, and completed during 1935–36. Are fitted for minelaying. *Hai* now rated as *Flottentender, Königin Luise* as leader of *Geleitboote.*

No.	Builder.	Begun	Launch	No.	Builder	Begun	Launch
F 1	Germania, Kiel	1934	1/3/35	7	Blohm & Voss, Hamburg	1935	25/5/35
2			2/4/35	8			25/7/35
K. Luise			1/6/35	9	Wilhelmshaven	1934	11/5/35
4			2/7/35	10			
5			14/8/35				
Hai			1/10/35				

Motor Torpedo Boats.
(Schnellboote)

S 38—57 (1939–40). Displacement: 86 tons. Length: 105 feet. Guns: 2—47 mm. A.A. Speed: 34–36 kts. Other particulars as in *S 6*—37.

S 8 1939, *Renard, Kiel*

32 boats: **S 6—37** (Lürssen, Vegesack, 1933–39). Displacement: 62 tons. Length: (*o.a.*) 93 feet. Armament: 2—19·7 inch T.T., 2—1 pdr. AA., 1—20 mm. AA. Machinery: High speed M.A.N. Diesels or Daimler Benz petrol engines. H.P.: 2,400 = 30–33 kts. Complement: 17.

Notes.—All these boats are of wood or composite section U-form, exceptionally stout and seaworthy. Several of them have been lost.

Note.—A third gunnery training ship was projected.

(Both fitted for Minelaying.)

1936 *Renard.*

1936 *Schafer.*

BRUMMER (Deschimag, Bremen, May 29, 1935.)

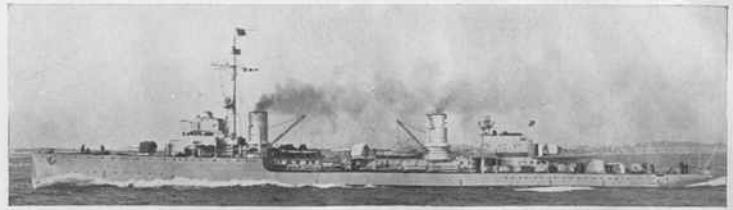
Standard Displacement: 2,410 tons. Complement, 214.

Dimensions: 354½ × 44½ × 11½ feet.

Guns: **4**—3·5 inch AA. (new model), **2**—3·5 inch AA. (of older pattern), **4**—3 pdr. AA. (Number and calibre of guns likely to vary from time to time.)

Machinery: Geared turbines. High pressure w.t. boilers. S.H.P.: 7,500 = 20 kts. (in service), but believed capable of considerably more.

Notes.—Laid down 1934 under current programme; commissioned Feb. 8, 1936. Used as AA. gunnery training ship. In emergency she would become a combatant unit of fleet. Unofficial reports suggest that she is not an unqualified success. She spent several months of 1936 in dockyard hands, undergoing repairs and alterations.



1933 *Photo, Official*

Special Note.

This ship was extensively damaged by Fleet Air Arm attack in May, 1940.

1934 *Photo*

BREMSE (Wilhelmshaven, Jan. 24, 1931.)

Standard Displacement, 1,460 tons. Complement, 192.

Dimensions: 318½ (*w.l.*), 339½ (*o.a.*) × 31 × 9½ feet.

Guns: **4**—5 inch, **2**—20 mm. AA. (Modified at times for testing other calibres.)

Machinery: 8 M.A.N. double acting, 2 stroke, geared Diesels. 2 shafts. Designed H.P.: 25,000 = 27 kts. Oil fuel:

Note.—Boat derricks are arranged to handle heavy targets in a seaway. Her 27 knots will permit of high speed towing—a necessary provision in modern gunnery practice. She is extremely noisy when under way. Laid down, 1929: completed, 1931.

Engineering Notes.—Machinery comprises eight 8-cyl. M.A.N. two-stroke engines of 600 r.p.m. reduced by Vulcan gearing to shaft speed of 400 r.p.m. Four engines to each shaft (twin screw). Total 26,000 S.H.P. Height of engines 8ft. 6in. from top to centre of shaft. Machinery power per litre is 7·38 b.h.p. against 5·14 b.h.p. per litre in *Deutschland*.

Training Ships (*Schulschiffe*).

(ex-Battleships)

SCHLESIEN. 1937, *R. Perkins.*

SCHLESIEN (May 28, 1906), **SCHLESWIG-HOLSTEIN** (Dec. 17, 1906).

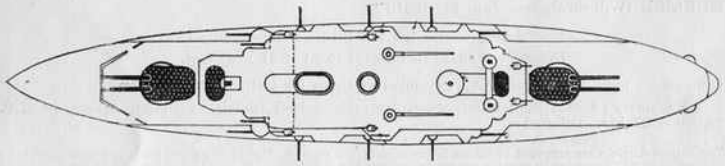
Displacement, 13,040 tons. Complement, 718.

Length $\begin{cases} (w.l.)\ 413 \\ (o.a.)\ 419 \end{cases}$ feet. Beam, 72⅜ feet. *Mean* draught, 25¼ feet.

Guns:
4—11 inch, 40 cal.
10—5·9 inch, 45 cal.
4—3·5 inch AA.
4 M.G.
Torpedo tubes:
(*Removed*)

Armour:
9½″ Belt (amidships) .....
4″ Belt (ends) .....
3″—1½″ Deck .....
11″ Barbettes .....
10″ Turrets to these, ...
8″ lower deck (side) .....
6¾″ Battery.....
12″ Conning tower (fore) ....
6″ „ „ (aft) ....

Note to plan.—Now mount 4—3·5 inch AA. at end of superstructure abaft mainmast. Upper deck 5·9 inch guns and torpedo tubes removed.



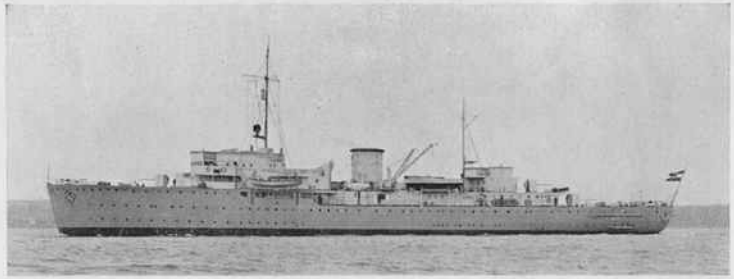
Machinery: 3 sets 3 cylinder triple expansion. 3 screws. Boilers: 12 Schulz-Thornycroft.
Designed H.P. 17,000/19,300=18 kts. Coal: 436 tons. Oil fuel: 1,130 tons. *Nominal* radius: 5900 miles at 10 kts.

Notes.—*Schlesien* and *Schleswig-Holstein*, built by Schichau, Danzig, 1904–08, and Germania, Kiel, 1905–08, respectively. Both were reconstructed and partially re-armed in 1926–28, and were converted into Cadets' Training Ships in 1935–36. Latter ship took part in operations at Danzig in September, 1939.

Depot and Repair Ships.

Note.—1 Depot Ship for Torpedo Craft and 1 for Submarines were under construction in 1939.

WALDEMAR KOPHAMEL (May 16, 1939). Built by Deutsche Werke, Kiel. **WILHELM BAUER** (Dec. 20, 1938). Built by Howaldtwerke, Kiel. Depot ships for Submarines.
KARL PETERS (Feb., 1939). Built by Neptun Werft, Rostock. Ex-cargo vessel. Displacement: 3,500 tons. Classed as *Schnellbootsbegleitschiff.*

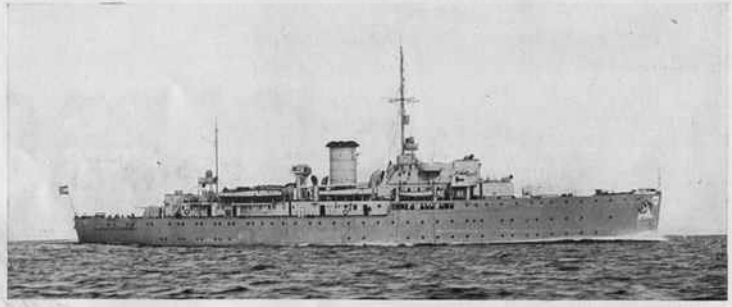


Now has S.L. on superstructure abaft mainmast. 1934, *Schäfer.*

SAAR (Deutsche Werke, Kiel, April 5, 1934).

Standard displacement: 2,710 tons. Complement: 214.
Dimensions: 308 × 44½ × 14 feet.
Guns: 3—4·1 inch, 4 M.G. Machinery: Linke-Hofmann-Busch Diesels. 2 shafts.
B.H.P.: 3,700 = 16 kts. Fuel: 336 tons.

Note.—*Saar* is at present attached to Submarine School. Classed as *Unterseebootsbegleitschiff.*



1935, *Renard.*

TSINGTAU (Blohm & Voss, Hamburg, June 6, 1934).

Standard displacement: 1,970 tons. Complement: 143.
Dimensions: 278¾ × 44½ × 12⅝ feet.
Guns: 2—3·5 inch AA., 4 M.G. Machinery: Linke-Hofmann-Busch Diesels. 2 shafts.
B.H.P.: 4,100 = 17·5 kts. Fuel: 182 tons.
Depot ship for Motor T.B. Classed as *Schnellbootsbegleitschiff.*

Depot Ships—*continued.*

1939, *Schäfer.*

ERWIN WASSNER (ex-*Gran Canaria*), (Hamburg, 1938). 3,866 tons *gross*. Dimensions: 379¾ × 54¾ × — feet. Machinery: Geared turbines. 1 shaft. I.H.P.: 5,000. Submarine Depot Ship.

Note.—A sister ship, the *Santa Cruz*, is also reported to have been acquired.

1939, *Schäfer.*

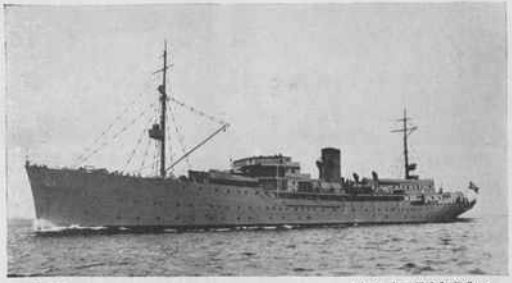
MEMEL (1937). Displacement: 998 tons. Speed: 13 knots. Parent Ship of "Weddigen" Submarine Flotilla.

1939, *Schäfer.*

TANGA (Neptun Werft, Rostock, 1938). Classed as *Schnellbootsbegleitschiff.*

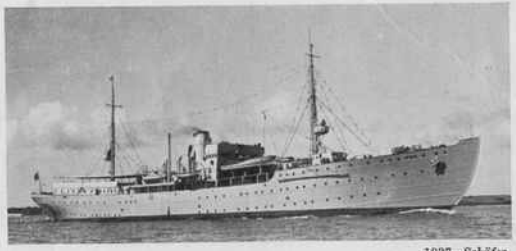
Photo wanted.

MARS (ex-*Samoa*, ex-*Altair*), (Emden, 1937). 2,414 tons *gross*. Dimensions: 324½ × 46½ × — feet. Machinery: Quadruple expansion. Speed: 11 kts. Tender to Gunnery School.



LECH. 1939, *Dr. Erich Gröner.*

ISAR (ex-*Puma*), **LECH** (ex-*Panther*), (Bremer Vulkan, Vegesack, 1930). Displacement: 3,850 tons. Dimensions: 319 × 45½ × 13 feet. Machinery: Triple expansion. H.P.: 2,000 = 12 kts. Both purchased 1938 for use as Submarine Depot Ships.



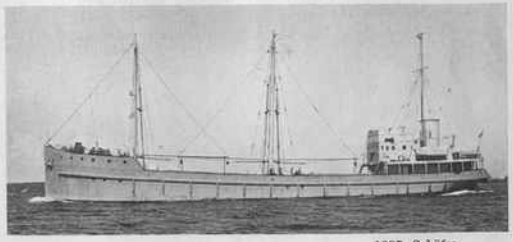
1937, *Schäfer.*

WEICHSEL (ex-*Syra*), (Howaldt, Kiel, 1923). Displacement: 3,974 tons. Dimensions: 309¼ × 44 × 13½ feet. Guns: 4—20 mm. AA. Machinery: Triple expansion. H.P.: 1,400 = 10·5 kts. Coal: 425 tons. 2 watertube boilers. Complement, 135. (Depot Ship for Submarines.)

Note.—Purchased in summer of 1936 and rebuilt at Stettin.

1938, *Schäfer.*

DONAU (ex-*Nicea*), (Lübeck, 1922). Displacement: 3,886 tons. Dimensions: 287½ × 41½ × 14 feet. Guns: 4—20 mm. AA. Machinery: Triple expansion. H.P.: 1,150 = 10 kts. Coal: 335 tons. 2 watertube boilers. Complement, 135. (Depot Ship for Submarines.)



1937, *Schäfer.*

MOSEL (ex-*Frieda*). (Hamburg, 1921). Displacement: 796 tons. Guns: 2—20 mm. AA. Speed: 9 kts. Complement, 34. Further particulars wanted. (Depot Ship for Submarines.)

Photo wanted.

WARNOW (ex-*Vorwärts*), (Vegesack, 1906). 726 tons *gross*. Dimensions: 206 × 41½ × — feet. I.H.P.: 600 = 13 kts. (Depot Ship for Submarines.)

Minesweepers.

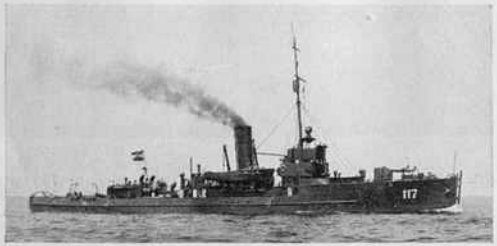
(*Minensuchboote*)

M 7 1939, *Ferd. Urbahns.*

M 1—M 36. (1937–1940). Displacement: 600 tons. Complement: 82. Guns: 2—4·1 inch, 2—37 mm. Machinery: Triple expansion. Speed: 17 kts. Coal: 150 tons. All laid down during 1936 and 1937 under 1935–37 Programmes.

Builders of these vessels are: H. C. Stülcken Sohn, Hamburg; Schichau, Elbing; Stettiner Oderwerke, Stettin; and Lübecker Flenderwerke, Lübeck.

Notes.—*M* 1 commissioned Sept. 1938; *M* 2—8 all completed by end Jan. 1939. *M* 20 was launched June 16, 1939. First 20 believed all to have been completed in 1939.



M. 117. 1934 *Photo, Schäfer.*

M 157	**M 117**	**M 102**	**M 84**
M 145	**M 111**	**M 98**	**M 75**
M 126	**M 110**	**M 89**	**M 72**
M 122	**M 104**	**M 85**	**M 61**

TAKU (*ex*-**M 146**)

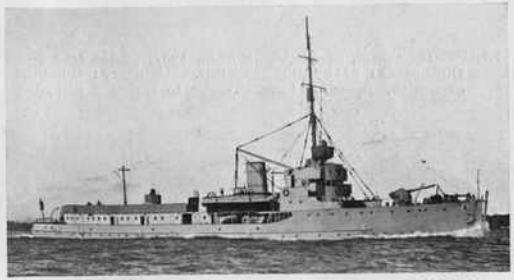
Built 1916–1920. Displacement: 525 tons. Dimensions: 184 (*w.l.*), 192 (*o.a.*) × 24½ × 7½ feet. Guns: 1—4·1 inch, 1 M.G. Engines: 2 sets triple expansion. Boilers: 2 watertube "Schulz." I.H.P.: 1,850 = 16 kts. 2 screws. Coal: 145–160 tons. Complement: 51.

Note.—Sundry other units of this class have been given names on appropriation for various special services, vide later pages. *M* 132 was lost off the West coast of Jutland in January, 1940. Another of above vessels is reported to have been lost in the Baltic on September 10, 1939.

Tenders.

HELA (1939). Particulars wanted. Rated as *Flottentender*.

Ex-*Geleitboot Hai* (on an earlier page) is rated as a Fleet Tender.



NETTELBECK. 1939, *Schäfer.*

NETTELBECK (ex-*Zieten*, ex-*M* 138, Tecklenborg, Feb. 17, 1919). Displacement: 550 tons. Dimensions: 184 × 34 × 7½ feet. Guns: 1—4·1 inch, 2—1 pdr. AA. 2 sets Diesel engines. B.H.P.: 840 = 12 kts. Complement: 40. Fuel: 90 tons.

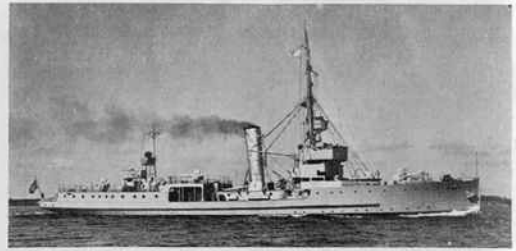
VON DER GRÖBEN (ex-*M* 107, 1919), **RAULE** (ex-*Wacht*, ex-*M* 133). Of similar type to *Nettelbeck*.

Note.—Ex-Minesweepers converted for service as *Räumbootsbegleitschiff* in 1934 and 1938, respectively.

1936, *Schäfer.*

DRACHE (Germania, 1908). 790 tons. Dimensions: 176 × 31½ × 10½ feet. Complement: 69. Guns: 6—4·1 inch. 1—20 mm. AA. Machinery: Geared turbines. High pressure watertube boilers. Oil fuel. Speed nominally 15 kts., but believed to exceed 18 kts. since 1936 refit.

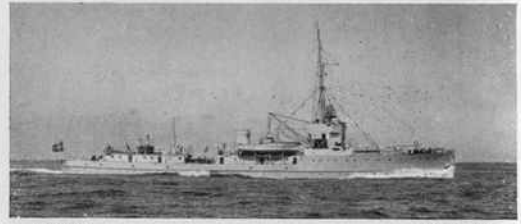
Note.—Rated as Gunnery School Tender (*Artillerieschulboot.*)



FUCHS. *Added* 1939, *Schäfer.*

FUCHS (ex-*M* 130, 1919). Displacement: 525 tons. Dimensions: 184 × 24 × 7½ feet. Guns: 3—3·5 inch AA. Machinery: 2 sets triple expansion. Boilers: 2 Schulz w.t. 2 screws. I.H.P.: 1,850 = 16 kts. Coal: 160 tons. Complement: 54.

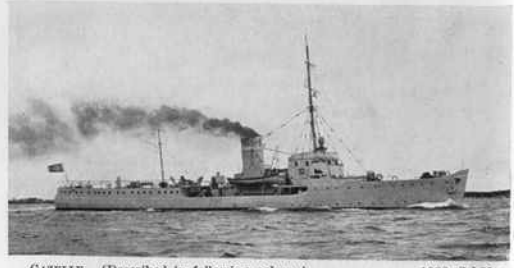
Note.—On occasions mounts 2—4·1 inch instead of 3—3·5 inch guns, being Gunnery School Tender.



BROMMY. 1938, *Schäfer.*

BROMMY (ex-*M* 50, 1916). Displacement: 480 tons. Dimensions: 180½ × 24 × 7½ feet. Guns: 1—4·1 inch, 2—1 pdr. AA. Machinery: 2 sets triple expansion. 2 shafts. I.H.P.: 1,800 = 16·5 kts. Boilers: 2 Schulz w.t. Coal: 145 tons.

Note.—Rated as *Räumbootsbegleitschiff*.



GAZELLE. (Described in following column). 1938, *Schäfer*

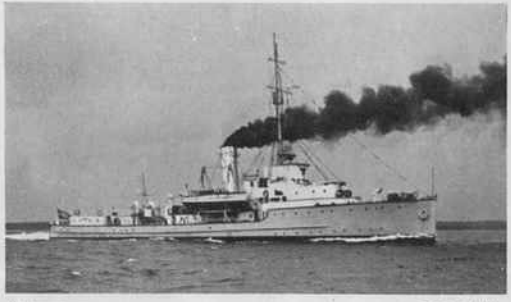
HAVEL. 1939, *Schäfer.*

HECHT (ex-*M* 60, 1917), **JAGD** (ex-*M* 82, 1917), **DELPHIN** (ex-*M* 108, 1919), **ACHERON** (ex-*M* 113, 1918) **FRAUENLOB** (ex-*M* 134, 1919), **GAZELLE** (ex-*Hela*, ex-*M* 135, March 15, 1919), **HAVEL** (ex-*M* 136). Ex-Minesweepers of 525 tons. Complement: 49. Dimensions: 184 × 24½ × 7¾ feet. Guns: 1—4·1 inch in some, none in others. Machinery: 2 sets triple expansion. 2 shafts. I.H.P.: 1,850 = 16 kts. Boilers: 2 Schulz w.t. Coal: 160 tons. *Acheron*, *Havel* classed as Submarine Tenders (*Unterseebootstender*). *Frauenlob*, Station Tender. *Delphin*, Gunnery School Tender. *Gazelle*, *Hecht*, *Jagd* classed as Fleet Tenders.

PELIKAN (ex-*M*. 28). 1934 *Photo, Schäfer.*

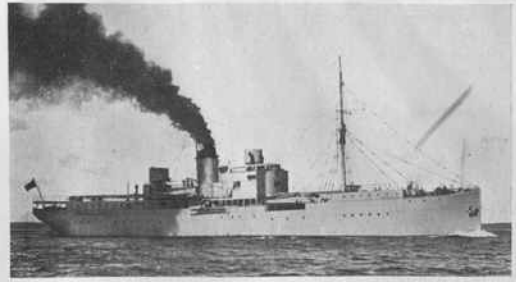
PELIKAN (ex-*M*.28, 1916). Displacement: 500 tons. Complement: 49. Dimensions: 180½ × 24 × 7½ feet. Guns: 1—4·1 inch, 1—1 pdr. AA. Machinery: 2 sets triple expansion. 2 shafts. I.H.P.: 1,800 = 16·5 kts. Boilers: 2 Schulz w.t. Coal: 145 tons. Classed as *Versuchsboot*.

NAUTILUS. 1938, *W. A. Fuller.*



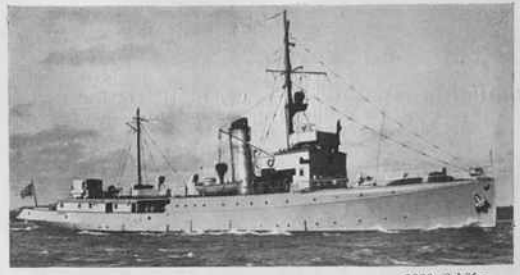
STÖRTEBEKER. 1938, *Schäfer.*

STÖRTEBEKER (ex-*M* 66, 1918), **NAUTILUS** (ex-*M* 81, 1919), **ARKONA** (ex-*M* 115, 1918), **OTTO BRAUN** (ex-*M* 129). Displacement: 525 tons. Complement: 49. Dimensions: 184 × 24½ × 7½ feet. Guns: 1—4·1 inch, 1 M.G. Machinery: 2 sets triple expansion. 2 shafts. I.H.P.: 1,850 = 16 kts. Boilers: 2 Schulz w.t. Coal: 160 tons. All classed as *Versuchsboote*.



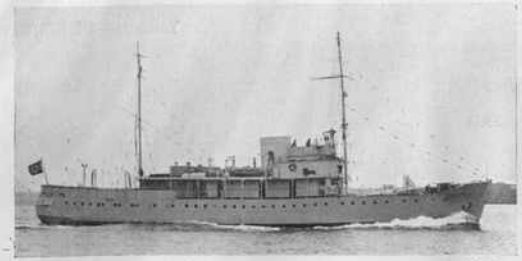
1939, *Schäfer.*

STRAHL (ex-*Latona*, ex-*Soneck*, 1902). Displacement: 1,643 tons. Complement: 35. Dimensions: 235 × 33½ × 11½ feet. Machinery: Triple expansion. I.H.P.: 800 = 10 kts. 1 cyl. boiler. First commissioned Oct. 20, 1936. Classed as *Versuchsschiff*.



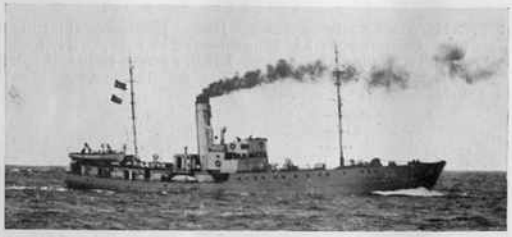
1939, *Schäfer.*

NORDSEE (Atlas Werke, Bremen, 1914). 830 tons. Complement, 46 Dimensions: 175⅞ × 30⅜ × 12 feet. Armament: Nil. Machinery: Triple expansion. H.P.: 1,680 = 12 kts. 2 screws. Coal: 105 tons. Well deck built up 1923. Tender to Navigation School.



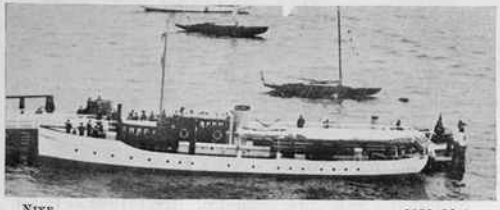
1939, *Schäfer.*

PAUL BENEKE (ex-*Admiral*), (Memel, 1936). Displacement: 460 tons. Dimensions: 165 (*o.a.*), 156 (*w.l*) × 25 × 10½ feet. No guns. Diesel engine. 1 shaft. B.H.P.: 800 = 12·5 kts. Complement: 30. Navigation School Tender. (Acquired in 1937 and refitted.)



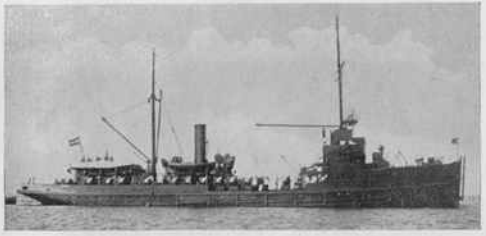
1939, *Dr. E. Gröner.*

DAHME (ex-trawler *Carsten Rehder*) (1936). 475 tons *gross*. Dimensions: 186 × 26½ × 13 feet. Machinery: Triple expansion. Submarine School Tender.



NIXE. 1935 *Photo.*

NIXE (ex-*Fiora*, Harburg, 1914). Displacement: 108 tons. Dimensions: 96¾ × 16½ × 5½ feet. Machinery: 2 Daimler 4-cylinder 4-stroke benzol engines. 2 screws. H.P.: 200 = 13 kts. Fuel: 10 tons. Complement: 13. (Purchased 1916.) Used as Commander-in-Chief's yacht, Kiel.



MT 1 1930 *Photo.*

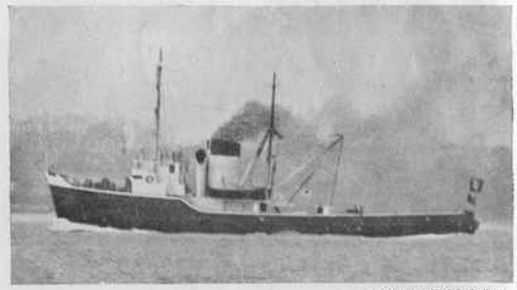
MT1 (ex-*Heppens*), **MT**2 (ex-*Mariensiel*). Both launched 1917 at Neptun Yard, Rostock. Displacement: 550 tons. Dimensions: 164 × 30½ × 7½ feet. Armament: 1 M.G. Machinery: 2 screws triple expansion. Boilers: 2 single-ended coal-burning Schulz-Thornycroft. 2 screws. Designed H.P.: 375 = 10 kts. Radius: 1,200 miles at 7 kts. Coal: 37 tons. Complement: 47. Classed as *Sperrübungsfahrzeuge*. (Minelaying tenders.)

C 21 1938, *Schäfer.*

C 21—C 24 (1935–37). Displacement: 120 tons. Speed: 9 kts. Minelaying Tenders.

A, B (1939), **C, D** (1940).

Notes.—There are also C 3, 5, 9, 14, 16 (1906–15), old steamers of 75–80 tons, belonging to the Blocking Division.



1939, *Dr. Erich Gröner.*

ORKAN (ex-*Welle*, ex-*Grille*, ex-*Star of Eve*, ex-*Von der Goltz*). (Hamburg, 1916.) Purchased 1927. Displacement: 470 tons. Complement: 22. Dimensions: 120 × 24 × 12½ feet. H.P.: 400 = 10 kts. Coal: 65 tons.

Note.—Sank in heavy weather, 1937, but salved and refitted. Used for recovery of practice Torpedoes. Classed as *Torpedobergungsdampfer*, and flies State Service Flag.

SPREE (ex-*Vorwärts*). Tender to Submarine School.

CARL ZEISS (ex-*H.L.M. Russ*). Tender to Gunnery School.

TAUCHER 1935, *Renard.*

TAUCHER (Stulcken & Sohn, Hamburg, 1934). Displacement: 195 tons. Complement: 17. Dimensions: 88½ × 22½ × 6½ feet. Diesel engine. H.P.: 60 = 6·5 kts. No armament. Diving School Tender (*Taucherfahrzeug*).

T 123. *Added* 1940, *W. Schafer.*

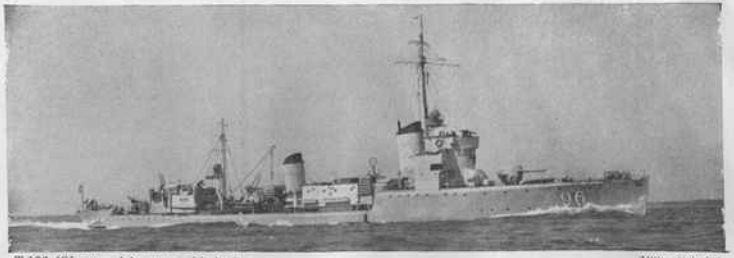
T 123 (ex-*S* 23), (Schichau, March 29, 1913). Displacement: 640 tons. Dimensions: 233 × 24½ × 9¾ feet. Armament: 2 M.G. Schichau turbines. Designed S.H.P.: 15,700 = 31 kts. (now only 22 kts.). Fuel: 71 tons oil. Complement: 89. Used as Submarine Tender.

T 107 1938, *courtesy Dr. Erich Gröner.*

4 *Krupp-Germania*: ***T 107, 108*** (ex-*G* 7, *G* 8) (both 1911), ***T 110, 111*** (ex-*G* 10, *G* 11) (both 1912).

Displacement: 760 tons. Dimensions: 247¾ × 25 × 10½ feet. Armament: 1—4·1 inch, 45 cal., 2 M.G. AA. Torpedo tubes: 3—19·7 inch in *G* 8, *G* 10; 3—21 inch and 1—19·7 inch in others. Machinery: 2 sets Satz-Germania turbines. Designed H.P.: 16,000 = 31 kts. (now about 25 kts.) 3 Schulz-Thornycroft boilers (oil burning). Oil fuel: 173 tons. Complement: 85.

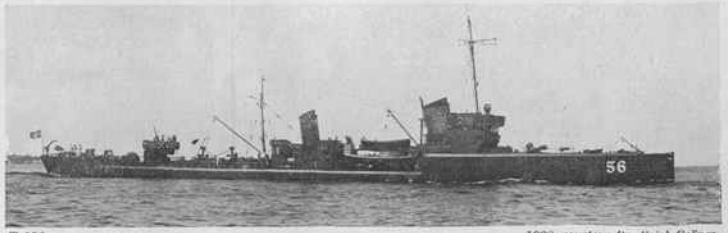
All four were lengthened 14¼ feet during alterations 1928–31. Triple tubes abaft mast. Single tube between funnels in *T* 110, 111. Used as training tenders (*Torpedoschulboote*) and will be discarded in near future.



T 196 (Observe AA. guns added aft). 1938, *Schafer.*

C. VAN BEVERN, *Added* 1940, *Dr. E. Gröner.*

1 *Krupp Germania*, ***T196*** (ex-*G196*). 1 *Vulkan* ***CLAUS VAN BEVERN*** (ex-*T* 190 ex-*V* 190). (1911.)
Displacement: 800 tons. Dimensions: *T* 196, 242½ × 26½ × 10½ feet; *T* 190, 241½ × 26 × 10½ feet. Armament: 2—4·1 inch, 45 cal., 2 M.G. AA. Machinery: Germania turbines in *T* 196; A.E.G. Vulcan type in *T* 190. Designed H.P.: *T* 196, 18,200 = 32·5 kts.; *T* 190, 18,000 = 30·5 kts. Present best speed, 25 kts. Fuel: *T* 196, 204 tons; *T* 190, 198 tons. 3 Schulz-Thornycroft boilers (oil burning). Complement: 80.
Notes.—*T* 196 classed as *flottentender*. *C. van Bevern* is experimental tender (*Versuchboot*), and has 2—19·7 inch torpedo tubes, mounted singly in centre line.

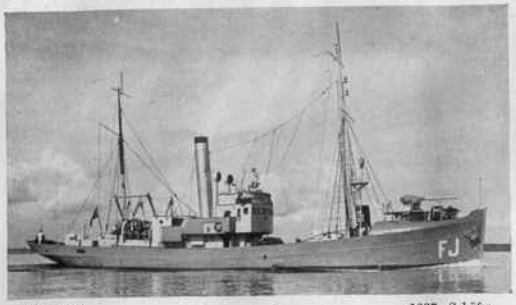


T 156. 1938, *courtesy Dr. Erich Gröner.*

EDUARD JUNGMANN (ex-***T 153***), ***T 155, 156, 157, 158*** (Vulcan, 1907–8).
Displacement: 675 tons. Dimensions: 237 × 25½ × 10½ feet (*max.* draught).
Guns: 1 or 2 M.G. AA. in all but *T* 158, which has 1—3·5 inch in addition, and *E. Jungmann*, which is not armed.
Machinery: Triple expansion. Designed H.P.: 10,900 = 30 kts. (now only 22 kts.). Oil: 181 tons. Complement: 74 in *E. Jungmann*, 83 in others. All originally bore numbers with V prefixed.
Note.—*E. Jungmann* used as Gunnery School Tender, others as tenders to submarines.

Patrol Vessels. (*Vorpostenboote*)

Note.—Some of these have been lost.

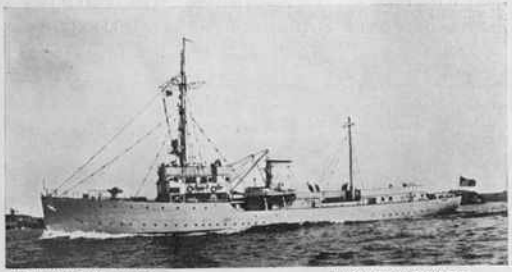


FRITHJOF. 1937, *Schäfer.*

(All similar except *Hagen*, in which deckhouse extends further aft.)

BEOWULF (ex-*Joh. Vester*, ex-*Beowulf*), **FREYR** (ex-*Glücksburg*) **FRITHJOF** (ex-*N. Ebeling*, ex-*Frithjof*), **HEIMDALL** (ex-*Lauenburg*), **SIGFRID** (ex-*Esteburg*, ex-*Sigfrid*), **WOTAN** (ex-*Augustenburg*), **HAGEN** (ex-*Anton Palm*, ex-*Gustav Harms*), **HILDEBRAND** (ex-*Seelöwe*, ex-*Wilhelm Grünhage*), **HUGIN** (ex-*Gorch Fock*, ex-*Hugin*), **MUNIN** (ex-*Ditmar Koel*, ex-*Munin*), **ODIN** (ex-*Österreich*), **VOLKER** (ex-*Niedersachsen*), (1912–21). Ex-Trawlers, acquired 1937. Displacement: 496 tons. Dimensions vary from 117 × 22 × 11 to 136 × 24 × 11½ feet. Guns: 1—3·5 inch, 3—1 pdr. AA. Machinery: Triple expansion. I.H.P.: 400 = 10 kts. Complement: 38.

Fishery Protection Vessels. (*Fischereischutzboote*).



WESER (ELBE similar). 1939, *Dr. Erich Gröner.*

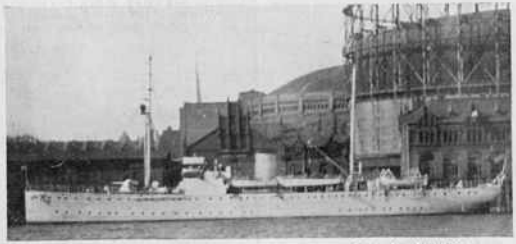
ELBE, WESER (both launched Jan. 24, 1931 at Wilhelmshaven). Displacement: 600 tons. Dimensions: 157½ × 27½ × 10½ feet. Armament: 1—3·5 inch, 1 M.G. Machinery: 2 sets Linke-Hofmann-Busch 6-cylinder 4-stroke Diesel engines. 2 screws. Designed H.P. 1600 = 15 kts. Radius: 7000 miles at 11 kts. Complement: 48.

Surveying Vessels (*Vermessungsschiffe*).

SUNDEVALL.

SUNDEVALL (ex-*Johann Wittenborg*, ex-*M* 109), (1919). Displacement: 525 tons. Complement: 49. Dimensions: 184 × 24¼ × 7½ feet. Guns: Not known. Machinery: 2 sets triple expansion. 2 shafts. I.H.P.: 1,850 = 16 kts. Boilers: 2 Schulz. Coal: 160 tons.

HOOGE (1938). Displacement: 90 tons. Also **NORDEROOG** (ex-*Peilboot II*) and **SÜDEROOG** (ex-*Peilboot V*), built 1911–12. 80 tons. I.H.P.: 132 = 8 kts. Complement: 16. Serve as Coastal Surveying Craft.



1939, *Dr. Erich Gröner.*

METEOR (Danzig, Jan. 18, 1915). 1,200 tons. Complement: 111. Dimensions: 219½ × 33½ × 12½ feet. Guns: 1—3·5 inch, 1—1 pdr. AA. Machinery: 2 sets 8 cyl. 4-stroke Diesels. 2 screws. H.P.: 2,200 = 14·5 kts. Completed June, 1925, and converted to Diesel propulsion in 1934.

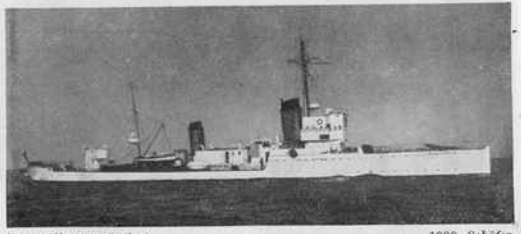
Target Service Ships (*Zielschiffe*).

1937, *Schäfer.*

HESSEN (ex-Battleship). (1903). Reconstructed 1936–37 as a wireless-controlled target ship. Displacement: 13,040 tons. Dimensions: 400½ × 73 × 23½ feet. H.P.: 16,000 = 20 kts. Oil fuel and automatically fired boilers. Equipment includes special smoke screen apparatus.

1934 *Photo.*

ZÄHRINGEN (ex-Battleship), (1901), reconstructed 1927–28 for use as a wireless controlled target ship on similar lines to British *Centurion*. Displacement: 11,800 tons. Dimensions: 393½ × 68½ × 25 feet. H.P. 5,000 = 13 kts. 2 screws. Oil fuel and automatically fired boilers. Complement: 104.



BLITZ (KOMET similar). 1939, *Schäfer.*

BLITZ (ex-*T.* 185, Vulcan, 1910), **KOMET** (ex-*T* 151, Vulcan, 1907). Ex-Torpedo boats, used for wireless target control and classed as *Fernlenkboote*. Displacement: 800 and 675 tons, respectively.

1939, *Dr. Erich Gröner.*

PFEIL (ex-*T* 139, 1906). Ex-Torpedo Boat. Displacement: 660 tons. Classed as *Schnellschlepper.*

LUDWIG PREUSSER (Lürrsen, Vegesack, 1938). Tug used for target towing and wireless control.

Mine Transports.

(Manned by mercantile personnel.)

LAUTING. 1937, *Schäfer.*

LAUTING, RHEIN (both Oderwerke), **OTTER** (Schichau, Elbing) (1934). *Standard* displacement: 1,253 tons. Speed: 9·5 kts. Complement: 40. Other particulars wanted.

IRBEN. Believed to be of similar type.

Admiralty Yacht.

(Officially classed as *Aviso.*)

1935, *Renard.*

GRILLE (Blohm & Voss, Hamburg, Dec. 15, 1934). Standard displacement: 2,560 tons. Complement, 245. Dimensions: 377½ × 44½ × 11½ feet. Guns: 3—4·1 inch, 2—37 mm. AA., 4 M.G. Geared turbines. S.H.P.: 8,000 = 20 kts. High pressure watertube boilers. Oil fuel: tons. Commissioned May 20, 1935, and used for Training duties with destroyers and submarines and as Tender to Signal School.

Motor Launches.

(Classed as *Räumboote.*)

Note.—At least one of these has been mined and sunk.

R 26. 1939, *Dr. Erich Gröner.*

R 39. 1939, *Dr. Erich Gröner.*

20 boats: **R 17—40** (Travemünde and Weser Yards, 1935–39). Displacement: 90 tons. Guns: 2—1 pdr. AA. Machinery: 2 M.W.M. Diesels with Voith-Schneider propellers. B.H.P.: 1,800 = 18 kts. Complement, 17.

R 16. 1935 *Photo.*

16 boats: **R 1—16** (Lürssen, Vegesack, and other Weser Yards, 1930–34). Displacement: 45 tons. Length: 85 feet. Armament: 1—1 pdr. AA. Machinery: 2 M.W.M. Diesel engines. 2 shafts. Designed H.P.: 600 = 18 kts. Complement, 15.

Note.— *R* 8 is fitted with Voith-Schneider propellers.

UZ (S) 18.

1 Boat: **UZ (S) 18** (1929). Displacement: 26 tons. Dimensions: 70 × 13¾ × 3½ feet. Armament: none. Machinery: 3 sets 6 cylinder 4-stroke benzol engines. 3 screws. Designed H.P.: 720 = 27 kts. (Now much less). Fuel: 3 tons. Complement: 8.

Note.—Now relegated to Harbour service.

1930 *Photo.*

(Classed as *Bewachungsfahrzeuge*).

2 boats: **UZ 32, 33** (1919–20). 60 tons. Dimensions: 101½ × 14½ × 4 feet. Machinery: 2 Benz 6-cylinder, 4-stroke benzol engines. H.P.: 500 = 14 kts. 2 screws. Fuel: 8½ tons. Complement, 17.

Oilers.

(All fly State Service Flag, and are manned by mercantile personnel.)

For Illustration of Altmark see Addenda

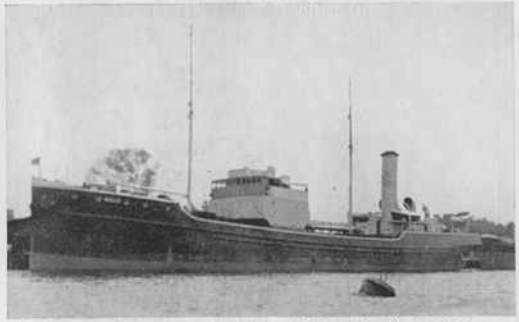
ALTMARK (1939), **DITTMARSCHEN** (1938), **ERMLAND** (1938), **FRANKEN** (Deutsche Werke, June 8, 1939), **WESTERWALD** (1938). 10,000–12,000 tons *gross*. Guns: 8—5·9 inch. Diesel engines. Speed said to approach 19 kts. Some built by Schichau.

1939, *Dr. Erich Gröner.*

INSEL POEL. Particulars wanted.

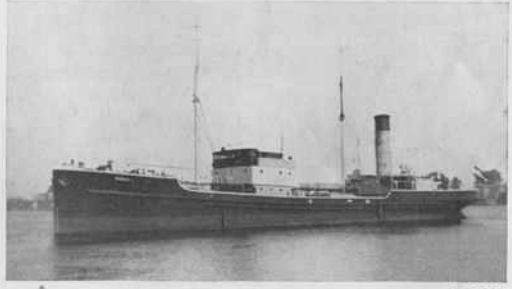
SAMLAND *Added 1938 courtesy Dr. E. Gröner.*

SAMLAND (ex-*Hansa*), (Schichau, 1929). Displacement: 10,111 tons. Dimensions: 413 × 52⅔ × — feet. I.H.P.: 2,100.



WOLLIN 1938, *courtesy Dr. Erich Gröner.*

WOLLIN (Reiherstieg, Hamburg, 1916). Displacement: 3,429 tons. Dimensions: 246 × 36 × — feet. Machinery: Triple expansion. I.H.P.: 600 = 9·5 kts.



Added 1938.

BRÖSEN (Howaldt, Kiel, 1915). Displacement: 2,498 tons *standard*. Dimensions: 233 × 34½ × 16 feet. Machinery: Triple expansion. I.H.P.: 250 = 8 kts.

NORDERNEY. Displacement: 1,110 tons. Speed: 7 kts.

Sail Training Ships. (*Schulschiffe*)

HORST WESSEL. 1936

HORST WESSEL (June 13, 1936), **ALBERT LEO SCHLAGETER** (Oct. 31, 1937). Both built by Blohm & Voss, Hamburg. *Horst Wessel* begun Feb. 15, 1936, and completed Sept. 17, 1936. Displacement: 1,634 tons. Complement: 289, including 200 midshipmen. Dimensions: 265¼ (*pp.*), 295½ (*o.a.*) × 39½ × 15¾ (*mean*), 16½ feet (*max.* draught). 2 M.G. Machinery: M.A.N. auxiliary Diesels. B.H.P.: 700 = 10 kts. Fuel: 48 tons. Sail area, 21,530 sq. feet.

1939, *Schäfer.*

GORCH FOCK (Blohm & Voss, Hamburg, 1933). Displacement: 1,354 tons. Dimensions: 200 (*pp.*), 241⅜ (*o.a.*) × 39½ × 15 feet. 2 M.G. M.A.N. auxiliary Diesels. H.P.: 500 = 8 kts. Fuel: 25 tons. Sail area: 19,376 sq. ft. Complement: 255.

Note.—20 per cent. of the cost of this vessel was defrayed by public subscription organised after the loss of the *Niobe*, the previous sail training ship of the German Navy.

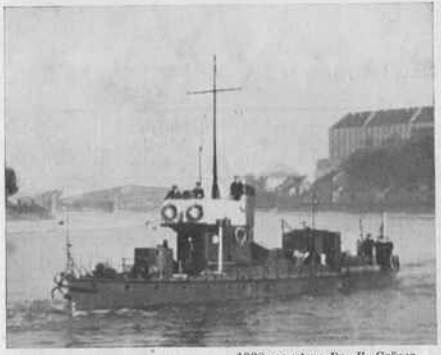
ASTA, ORION. Small sailing yachts used for coastal training. Officially classed as *Segelfahrzeuge bei den Stationen*. Latter vessel was built at Travemünde and commissioned April 22, 1936.

The following River Force (including many ex-Austrian and ex-Czechoslovakian vessels) is maintained on the Danube, being known officially as the Donauflottille, Linz (where its headquarters are situated). It is manned by naval personnel.

River Patrol Vessels

ALBERICH (ex-*Remus*), (Linz Shipyard, 1938). Displacement: 240 tons. Dimensions: 160¾ (*w.l.*), 167⅔ (*o.a.*) × 25 × 3⅔ feet. Guns: 2—1 pdr. AA. Machinery: 2 Sulzer Diesels. 2 shafts, triple rudder and Kort nozzle. B.H.P.: 560 = 12 kts. Fuel: 20 tons. Classed as *Schlepper* (Tug). Date is probably that of conversion to present service.

BECHELAREN (ex-*President Masaryk*), (1930). Displacement: 185 tons. Complement: 50. Dimensions: 150 × 20 × 5 feet. Guns: 4—66 mm., 4 M.G. Machinery: 2 sets turbines. S.H.P.: 1,600 = 16·8 kts. Oil: 45 tons.



1938, *courtesy Dr E. Gröner.*

BIRAGO (ex-Hungarian *Siofok*, ex-Austro-Hungarian *Czuka*). Laid down Jan. 1915 as patrol vessel "K" at the Ganz-Danubius Shipyard, Budapest. Completed and commissioned March 1, 1916. Purchased by Austria in Aug. 1929. Displacement, 60 tons. Complement, 18. Dimensions: 118 × 15 × 2⅔ feet. Protected by bullet-proof belt of chrome steel. Guns: 1—70 mm., 30 cal., 1—1 pdr. AA., 3 M.G. Machinery: Reciprocating. I.H.P.: 800 = 11 kts.

FM 1, 2 (ex-*OMd* 1, 2). Displacement: 17 tons. Guns: 2—3 inch, 2 M.G. Speed: 17 kts.

Motor Launches. (*Flussräumboote.*)

1938, *courtesy Dr. E. Gröner.*

F.R. 1—12, (1938). Rated as River Minesweeper. Particulars wanted.
(There are also a number of new fast motor boats, rated as *Flusschnellboote*).

F.H.R. 1—6 (ex-Austrian *Krems, Murr, Salzach, Enns, Drau*) (1933-35). Steel. Dimensions: 46 × 10 × 2½ feet. 2 M.G. 2 sets Diesels. 2 shafts. H.P.: 200. Complement: 6. Rated as Auxiliary River Minesweepers.

GAZELLE. Of similar design to above vessels, but 30 × 7½ × 2 feet.

There are also several steel launches of single screw type. Dimensions: 21¾ × 7½ × 1⅔ feet. 2 M.G. 1 motor. Complement, 7.

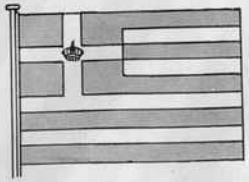
Note.—Apart from the foregoing vessels, many other craft, mostly small launches, have been transferred to the Danube Flotilla from other organisations, such as the Police, Hitler Youth, etc. A number of additional units are under construction. These include the *Brünhild* and *Kriemhild* (rated as *Begleitschiffe*); *Uta* (*Versorgungsschiff*); *Nothung* (*Bereisungsboot*); *Nibelung* and *Schildung* (*Motorboote*).

Special Note.

It is probable that some of the Polish River Flotilla on the Vistula have been added to the above total since 1st September, 1939.

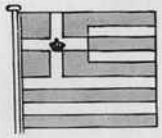
GREECE.

Flags.

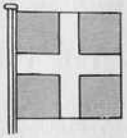


ENSIGN

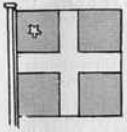
H.M. THE KING



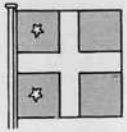
MINISTER OF MARINE



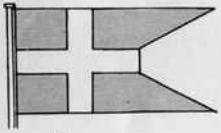
ADMIRAL



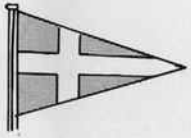
VICE-ADMIRAL



REAR-ADMIRAL

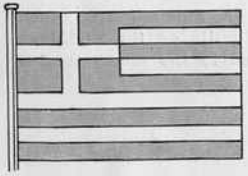


COMMODORE



CAPTAIN (D)

PENDANT



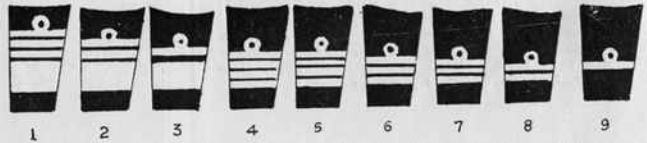
MERCANTILE

JACK

SKYBLUE

Personnel :—About 6,300 (conscript, 18 months or enlistment).
Minister of Marine :—General Metaxas.
Chief of General Naval Staff :—Rear-Admiral A. Sakellariou.
Naval Attaché, London : Captain S. Matessis.

Uniforms.



1 2 3 4 5 6 7 8 9

(1) Navarkhos *Admiral.* (2) Andinavarkhos. *Vice-Admiral.* (3) Yponavarkhos. *Rear-Admiral.* (4) Ploiarkhos. *Captain.* (5) Andiploiarkhos. *Commander.*
(6) Plotarkhis. *Lieutenant-Commander.* (7) Ypoploiarkhos. *Lieutenant.* (8) Anthipoploiarkhos. *Sub.-Lieut.* (9) Simeophoros. *Act. Sub-Lieut.*

Other branches without curl:—
Constructors: *black velvet.*
Paymasters: *scarlet velvet.*
Surgeons: *purple velvet.*
Apothecaries: *green velvet.*
Aviation: *light green velvet.*
Dockyard: *black.*

With curl:—
Engineers: *violet velvet.*

Tonnage.

At Standard Displacement.

Mercantile Marine.

From "Lloyd's Register" 1939
607 vessels of 1,780,666 Tonnage.

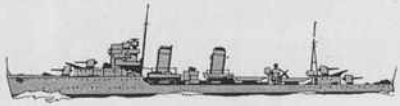
Naval Ordnance

Nominal Calibre In.	mm.	Maker and Date		Length in Calibres	Weight of Gun	Weight of Projectile	Muzzle Velocity Foot-sec.	Muzzle Energy Foot-tons
					Tons	lb.		
9·2	233·4	A.	1906	45	27·2	380	2,725	18,550
7·5	190·5	A.	1906	45	14	200	2,888	11,746
6	152·4	A.	1910	50	9	100	2,986	6,238
5	127·8	R.	1938	45	3·65	62	2,756	3,180
4·7	120	T.	1929	50	3	48	3,117	2,200
4	102	B.	1910	50	2·6	33	2,998	1,937
3·5	88	K.	1907	30	1	18	2,500	1,000
3 H.A.	76·2	V.	1924	50	1·1	12·8	2,789	675
3	76	A.	1908	40	14 cwt.	12·8	2,297	459
2·6	66	S.	1905	30	12 cwt.	9	2,000	400
1·58 H.A.	40	T.	1917	39	5 cwt.	2	2,000	55
1·46 H.A.	37	R.	1938	60	3 cwt.	1·38	2,756	

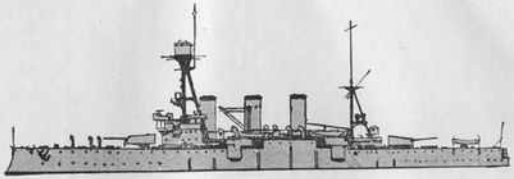
A = Armstrong; T = Terni; B = Bethlehem; V = Vickers; K = Krupp; S = Skoda; R = Rheinmetall; H.A. = High Angle.

PLEIAS.

ARES.



VASILEVS GEORGIOS I.
VASILISSA OLGA



AVEROF.

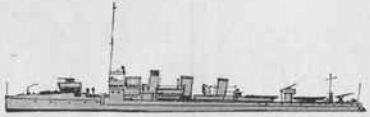
YDRA *class.*

PERGAMOS *class.*

KIOS *class.*

AIGLI *class.*

AETOS *class.*



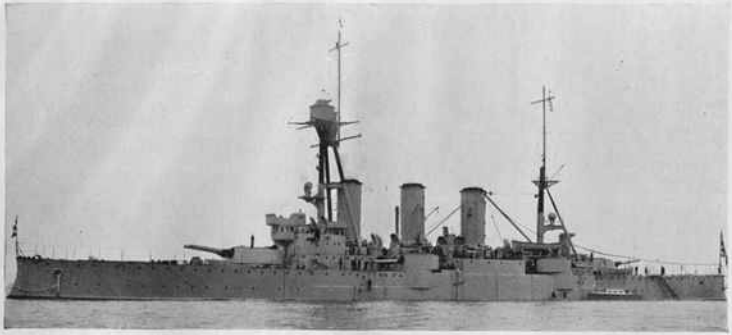
ASPIS, NIKI.

THYELLA.
SPHENDONI.

KATSONIS *class.*

NEREUS *class.*

Cruiser.



AVEROF. 1937, *R. Perkins.*

AVEROF (March, 1910).

Standard Displacement, 9,450 tons. Complement, 670.

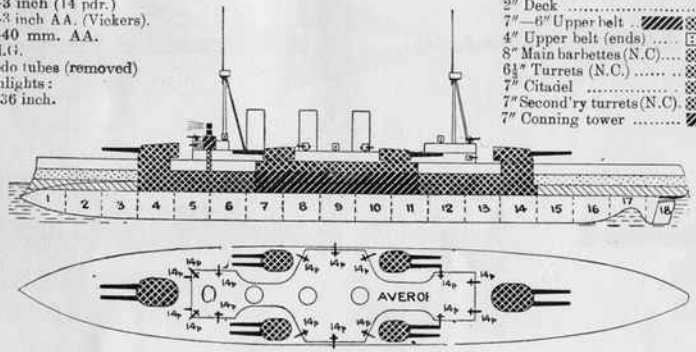
Length (*over all*), 462 feet. Beam, 69 feet. *Maximum* draught, 24⅜ feet.

Guns (Armstrong):
- 4—9·2 inch, 45 cal.
- 8—7·5 inch, 45 cal.
- 16—3 inch (14 pdr.)
- 2—3 inch AA. (Vickers).
- 4—40 mm. AA.
- 2 M.G.

Torpedo tubes (removed)

Searchlights:
- 2—36 inch.

Armour (Terni):
- 8″ Belt (amidships) .....
- 3½″ Belt (ends) .....
- 2″ Deck .....
- 7″—6″ Upper belt .....
- 4″ Upper belt (ends) .....
- 8″ Main barbettes (N.C.) .....
- 6½″ Turrets (N.C.) .....
- 7″ Citadel .....
- 7″ Second'ry turrets (N.C.) .....
- 7″ Conning tower .....

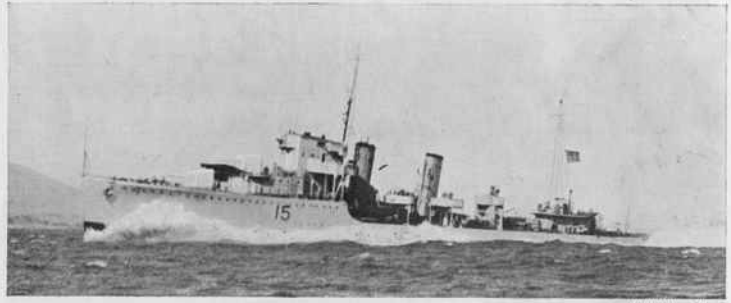


Machinery: 2 sets 4 cylinder triple expansion. 2 screws. Boilers: 22 Belleville. Designed H.P. 19,000 = 22·5 kts. Trials: 21,500 = 23·9. Coal: *normal* 660 tons; *maximum* 1500 tons = 7125 miles at 10 kts.; 2489 miles at 17¾ kts. Built by Orlando.

Gunnery Notes.—All big guns hydraulically controlled. 2—3 inch AA. guns mounted on after superstructure.

General Notes.—Cost £950,750. Sister to Italian *Pisa*. Reboilered and completely refitted by Forges et Ch. de la Mediterranée, at La Seyne 1925-27, the alterations effected including the installation of new heavy type tripod foremast with director tower, additional rangefinders and searchlights, AA. guns, new boats, etc., at a cost of £140,000.

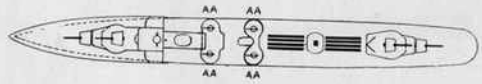
2 + 2 (*projected*) Vasilevs Georgios class.



1939 *Official.*

4 *Yarrow* type: ***Vasilevs Georgios I*** (March 3, 1938), ***Vasilissa Olga*** (June 2, 1938), and 2 more (building). Displacement: 1,350 tons. Dimensions: 312 (*pp.*), 320 (*w.l.*) × 33 × 8½ feet (*mean*). Guns: 4—5 inch, 4—37 mm. AA., 3 M.G. Tubes: 8—21 inch. Machinery: Parsons geared turbines. S.H.P.: 34,000 = 36 kts. Boilers: 3 Yarrow 3-drum type. Complement: 150.

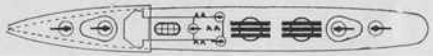
Notes.—The first pair were laid down at Scotstoun in February, 1937, and were delivered in February, 1939. The second pair were to have been laid down in the Royal Hellenic Naval Yard in the course of 1940, their machinery and boilers to be supplied by Messrs. Yarrow & Co., Ltd.



4 Ydra class.

YDRA. 1932 *Photo, Official.*

YDRA. 1938, *Grand Studio.*

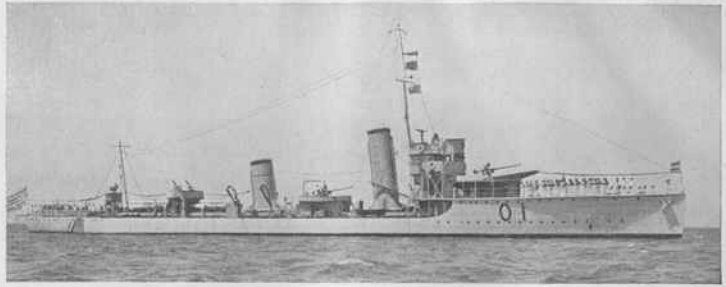


4 *Odero* type: ***Ydra*** (Oct. 21, 1931), ***Coundouriotis*** (Aug. 29, 1931), ***Spetsai, Psara*** (1932). All built at Genoa. Displacement: 1,389 tons, 2,050 tons *deep load*. Dimensions: 303 × 32 × 12¾ feet, *max.* draught. Armament: 4—4·7 inch, 3—40 mm. AA., 6—21 inch tubes. All fitted to carry 40 mines. Machinery: 2 sets Parsons geared turbines. 3 Express type boilers. S.H.P.: 40,000 = 39·5 kts. Oil: 630 tons. Cost about £272,000 each. Radius: 5,800 miles at 20 kts. Complement: 156.

Trials:	4 hrs.	*Ydra* 39·9.	*Spetsai* 40·9.	*Coundouriotis* 40·75 kts.	*Psara* 40·13 kts.
	Max.	„ 41·7.	„ 41·5.	„ 41·8 kts.	„ 41·10 kts.

(All with over 50,000 S.H.P.)

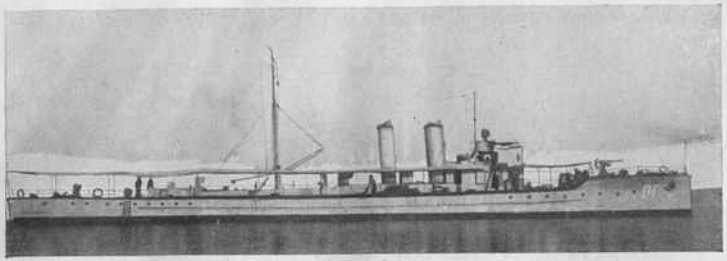
4 Aetos Class.



AETOS. 1931 *Official Photo.*

4 *Cammell-Laird* type: ***Aetos, Ierax, Leon, Panther*** (all launched 1911). 1050 tons *normal*, 1300 *full load*. Dimensions: 293 × 27¾ × 8½ feet, *normal* draught; *full load* draught, 10 feet. Armament: 4—4 inch (Bethlehem), 2—2 pdr. Pom-poms. Tubes: 6—21 inch, in triple deck mountings. All four vessels are fitted for mine-laying, and carry 40 mines each. 3 searchlights. S.H.P.: 19,750 = 32 kts. Combined Parsons and Curtis turbines. 4 Yarrow boilers. Oil: 260 tons. These were 4 boats, *San Luis, Santa Fé, Tucuman* and *Santiago*, built for Argentina. Purchased by Greece, Oct., 1912. Reconstructed and re-boilered by Messrs. J. S. White & Co., Ltd., E. Cowes, 1924–25, at a cost of £110,000 each.

General Notes.—The refit of these destroyers has proved a great success, the original speed being exceeded by 2 kts.



PERGAMOS. (Now has tall foremast and stump mainmast.) 1922 *Photo, Official.*

2 *Ex-Austrian* boats: ***Pergamos*** (ex-95 *F*), ***Prousa*** (ex-92 *F*). Built by Ganz-Danubius Yard, Fiume (1914-1915). 241 tons. Dimensions: 188½ × 19 × 5 feet *max.* draught. H.P. 5000 = 28 kts. 2 turbines. 2 Yarrow boilers (1 coal and 1 oil). Fuel: 21 tons coal + 31 tons oil. Guns: 1—11 pdr. Skoda. 3—18 inch Tubes. Complement, 25.

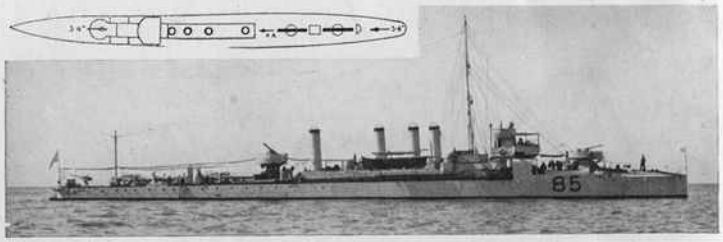
Note.—These boats underwent a general refit at Piraeus, 1926. Original speed exceeded.

KYZIKOS. 1932 *Official Photo.*

3 *Ex-Austrian* boats: ***Kyzikos*** (ex-98 *M*), ***Kios*** (ex-99 *M*), ***Kidonia*** (ex-100 *M*). Built at Monfalcone (1914). 241 tons. Dimensions: 197 × 18 × 4·9 feet *max.* draught. Machinery details as *Pergamos* type, above. Armament: 1—11 pdr. Skoda. 2—18 inch Tubes.

Note—All three boats underwent a general refit at Piraeus 1926. Original speed exceeded.

2 Thyella Class.

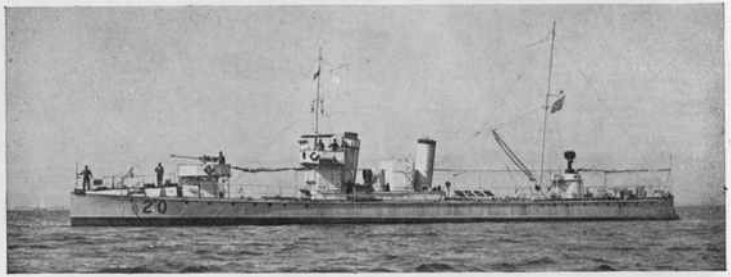


THYELLA. 1931 *Official Photo.*

2 *Yarrow* type: ***Thyella, Sphendoni*** (1906-07). 305 tons. Dimensions: 220½ × 20½ × 6 feet, *mean* draught; *max.* draught, 9 feet. Armament: 2—3·5 inch Krupp, 1—2·7 inch AA. 2 tubes (18 inch). Speed: 30 kts. Coal: 80 tons. Endurance: 1140 to 1250 miles at 15 kts. Complement, 70.

Notes—Both refitted 1926-28. Present speed 29 kts. Full load displacement is 390 tons.

4 Aigli Class.



AIGLI. *Added* 1931 *Official.*

4 *Vulkan* type: ***Aigli, Alkyone, Arethousa, Doris,*** (all launched 1913). 123 tons. Dimensions: 147½ × 9½ × 4 feet. Armament: 2—6 pdr. Bethlehem. 2—18 inch tubes. I.H.P. 2600 = 25 kts. (about 24 kts. best speed now). Trials: *Aigli* 26·2, *Doris* 25·7. Coal: 25 tons.

Note.—These four boats were completely refitted, 1926-30.

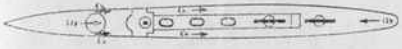
(Should show only one Tube in centre line forward).

2 Niki Class.

NIKI. 1931 *Official Photo.*

2 *Vulkan Stettin* type: ***Aspis*** (1906), ***Niki*** (1905). 275 tons. Dimensions: 200′ 1 × 20½ × 6 feet, *mean* draught; *max.* draught, 9 feet. H.P.: 6,700 = 30 kts. Armament: 2—3·5 inch Krupp, 1—2·7 inch AA., 2 tubes (18 inch). Coal: 90 tons. Complement: 70. Endurance: 1,140 to 1,250 miles at 15 kts.

Note.—Both underwent a thorough refit, 1928–29. Present speed 29 kts.



Submarines.

Note:—2 submarines are to be ordered under 1937–1940 Construction Programme.

4 Glafkos Class.

GLAFKOS. 1938, *Grand Studio.*

4 *Simonot* type. ***Nereus*** (Dec., 1927), ***Proteus*** (Oct. 24th, 1927), ***Triton*** (April 4th, 1928), all built by At. & Ch. de la Loire, at Nantes, ***Glafkos*** (1928), by Chantiers Navals Français, at Blainville. Displacement: 718/960 tons. Dimensions: 225 (*pp.*) × 18·8 × 13·7 feet. Machinery (supplied by At. & Ch. de la Loire): On *surface*, 2 sets 2-cycle Sulzer-Diesels, totalling 1,420 B.H.P. for 14 kts.; *submerged*, 1,200 B.H.P. for 9½ kts. Oil fuel: 105 tons. Endurance on *surface*: *normal* 1,500 miles, *maximum* 4,000 miles; both at 10 kts. When *submerged*, 100 miles at 5 kts. Armament: 1—3·9 inch, 1—3 pdr. AA., 6—21 inch internal bow tubes, 2—21 inch internal stern tubes. Stowage for 10 torpedoes, 150 rounds of 4 inch ammunition. Complement: 41. *Maximum* depth of submergence: 45 fathoms. Approximate cost £119,000 each. Pendant Nos. (painted on C.T.) are: *Proteus*, Y3 *Nereus*, Y4 *Triton*, Y5 *Glafkos*, Y6.

2 Katsonis Class.

KATSONIS. 1938, *Grand Studio.*

2 *Schneider-Laubeuf* type. ***Katsonis*** (20 March, 1926), by Ch. de la Gironde, at Bordeaux; ***Papanicolis*** (Nov. 1926), by At. & Ch. de la Loire, at Nantes. Displacement: 595/778 tons. Dimensions: 204½ (*p.p.*) × 17½ × 11 feet. On *surface*, 2 sets of 2-cycle Machinery: Schneider-Carels Diesels, totalling 1300 B.H.P. for 14 kts. *Submerged*, 1000 B.H.P. for 9½ kts. Endurance, on *surface*: *normal* 1500 miles, *maximum* 3500 miles, both at 10 kts: when *submerged*, 100 miles at 5 kts. Armament: 1—3·9 inch, 1—3 pdr. AA., 2—21 inch internal bow tubes, 2—21 inch external bow tubes, 2—21 inch external stern tubes. Stowage for 7 torpedoes, 100 rounds of 4 inch ammunition. Complement, 39. *Maximum* depth of submergence: 45 fathoms.

Identificati n N de.—Submarines are differentiated by letters and numerals painted on side of conning tower, i.e. *Katsonis*, Y1, *Papanicolis*, Y2.

PLEIAS. 1931 *Official Photo.*

PLEIAS (Soc. Italiana Ernesto Breda, Mestre Yard, Venice, 28th April, 1926). Displacement: 520 tons. Dimensions: 162 × 27 × 12½ feet. I.H.P. 1000 = 14 kts. Coal: 90 tons. Carries 50 mines. Normally this ship is employed as a Light-house Tender.

Photo wanted.

ALIAKMON (ex-*Lord Merrivale*, 1926), **NESTOS** (ex-*Lord Bradbury*, 1925), **STRYMON** (ex-*Cape Otway*, 1925), **AXIOS** (ex-*Cape Grisnez*, 1919). Ex-trawlers, built by Cochrane & Sons, Ltd., Selby. 325 tons *gross*. Dimensions: 138¾ × 23¾ × 13½ feet. Armament: 1—37 mm. AA., 40 mines. Machinery: Triple expansion. I.H.P.: 600 = 11 kts. Also fitted for minesweeping.

1931 *Official photo.*

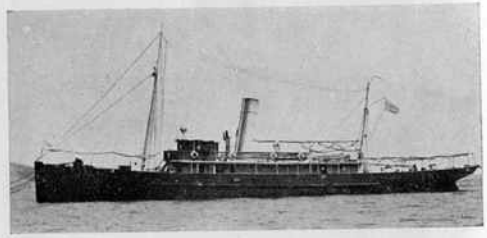
PARALOS (Rotterdam, 1925). Displacement: 395 tons. Dimensions: 150 × 22 × 10½ feet. I.H.P. 550 = 13 kts. Coal: 35 tons. Carries 52 mines. Used in peace time as a despatch vessel.

Photo wanted.

ORION (ex-*Carlovassi*, ex-*Bourgneuf*, ex-*Heerenveen*), (Slikkerveer, 1919). 707 tons *gross*. Dimensions: 180¾ × 28½ × — feet. Machinery: Triple expansion. I.H.P.: 600 = 11 kts. Carries 50 mines. Normally employed as a Light-house Tender.

1931 *Official photo.*

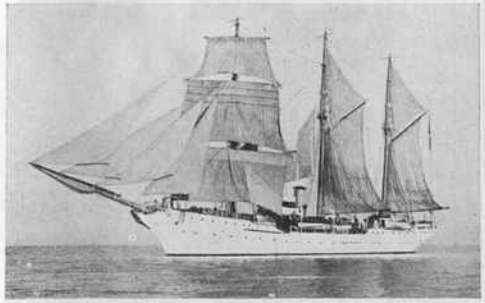
KORGIALENIOS (Rotterdam, 1916). Displacement: 380 tons. Dimensions: 150 × 21½ × 10 feet (depth). I.H.P. 550 = 13½ kts. Coal: 35 tons. Carries 50 mines. Employed as a despatch vessel.



1931 *Official photo.*

TENEDOS (Glasgow, 1906). Displacement: 460 tons. Dimensions: 142 × 24 × 10 feet (*mean* draught). I.H.P. 560 = 13 kts. Coal: 40 tons. Carries 40 mines. Employed as a despatch vessel.

Training Ship.



ARES. 1932 *Photo, Official.*

ARES (Forges et Chantiers de la Méditerranée, La Seyne, Jan. 28th, 1927). Steel Barquentine. Displacement: 2200 tons. Dimensions: 208 (*p.p.*) × 39½ × 18 feet. Guns: 4—3 inch. Auxiliary steam engine (reciprocating) I.H.P. 1000 = 10 kts. 2 oil-fired Babcock & Wilcox boilers. Fitted with lecture rooms, workshops and accommodation for 100 Naval Cadets and 150 Boys. Total complement: 419. Carries an exceptionally full equipment of boats for training purposes.

Note.—On trials, H.P. 1144 = 11·38 kts.

Oiler.

Photo wanted.

ARGO (ex-*Solna*, ex-*Granlund*, ex-*Corbis*, ex-*War Ranee*), (Swan Hunter, 1918). Displacement: 11,715 tons; 8,350 tons *deadweight*. Dimensions: 400 × 52½ × 25½ feet. Machinery: Triple expansion. I.H.P.: 2,176 = 11 kts. 3 boilers. Fuel capacity: 2,200 tons.

Motor Torpedo Boats.

To be completed 1940.

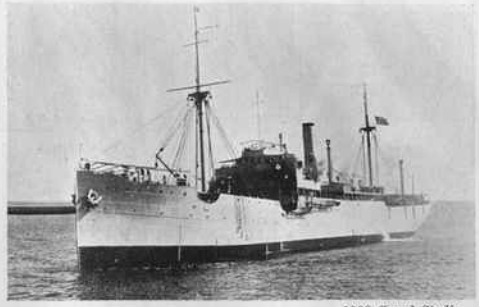
T3, T4, T5, T6. Ordered from Vosper, Ltd., Portsmouth. Displacement: 32 tons. Length: 70 feet. Armament: 2—21 inch torpedo tubes, 1—20 mm. AA. gun. Machinery: 3 Isotta-Fraschini engines. H.P.: 3,450 = over 40 kts.

Note.—Original T3 and T4, built 1939, were taken over by the British Government.

Added 1938, *courtesy Messrs. Thornycroft.*

T1, T2. Thornycroft 55 ft. type (1929). Two motors each 375 H.P. = 37 kts. (40 kts. reached on trials.) 2 Lewis guns, 2—18 inch torpedoes, 4 D.C.

Fleet Repair and Submarine Depôt Ship.



1938 *Grand Studio.*

HIFAISTOS (ex-*Khios*) (ex-German Cargo Ship *Marie Reppel*, Rostock, 1920). *Gross* tonnage, 4549. Dimensions: 360½ × 50 × 23 feet. I.H.P. 2500 = 11½ kts. Guns: 4—4 inch AA. Converted into a Repair Ship by Messrs. Palmers, Jarrow-on-Tyne, 1925. Fitted with up-to-date workshops and plant.

MISCELLANEOUS.

The following obsolete ships are still in existence, though regarded as non-effective and relegated to harbour service:

Ex-battleship *Kilkis* (1905), 13,000 tons. (Described in 1922 Edition of "Fighting Ships".)

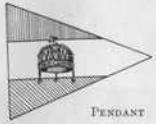
Oiler *Prometheus* (1889) and Submarine Depot Ship *Aeva* (1894). (Both described in 1937 Edition.)

HUNGARY.

(Danube Flotilla.)

ENSIGN.

FLAG OFFICER



PENDANT

Principal Base.—Budapest.

Under Law XIV of 1922 the Royal Hungarian Honvéd River Force (Magyar Királyi Honvéd Folyamerök) was established for police purposes on the Danube, under the control of the Ministry of the Interior.

Colour of Ships: Khaki, and Green below waterline.

Insignia of Rank.

Vezérkapitany. (*Rear-Admiral.*) | Fökapitany. (*Captain, senior.*) | 1 Törzskapitany. (*Captain, junior.*) | 2 Törzskapitany. (*Commander.*) | Kapitany. (*Lieut.-Commander.*)

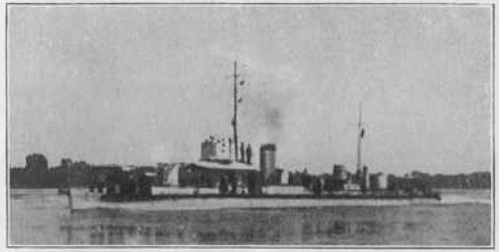
Föhajónagy. (*Lieut.*) | Hajónagy. (*Sub-Lieut.*) | Gyakornok. (*Midshipman.*)

Without curl, and with colour between stripes :—
Surgeons : Black velvet.
Engineers : Cherry-coloured cloth.
Constructors : Cherry-coloured velvet.
Paymasters : Red cloth.
Musical Directors : Violet cloth.

Uniform Cap.
Badge is a golden anchor surrounded by a laurel wreath and surmounted by the Holy Crown of Hungary.

4 River Patrol Boats.

(Ex-Austro-Hungarian.)

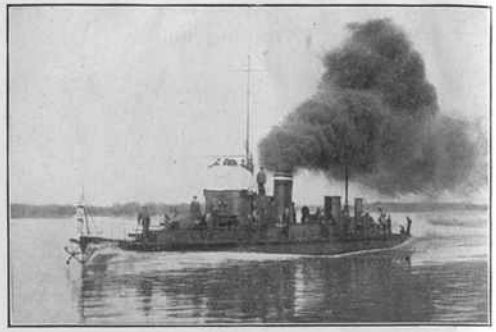


DEBRECEN. (Masts now of equal height.) 1925 *Official Photo.*

DEBRECEN (ex-*Komaron*, ex-Austro-Hungarian *Lachs*), (Ganz-Danubius Yard, Budapest, 1918). Displacement : 140 tons. Dimensions : 149¼ × 19½ × 3½ feet *mean* draught. H.P. 1400 = 15 kts. A.E.G. turbines. 2 Yarrow boilers. Tunnel screws. Guns : 2—3 inch, 2 M.G. 1 S.L. Oil fuel : 18 tons. Complement, 44. Refitted 1924.

1933 *Photo, Official.*

GYOR (ex-Austro-Hungarian *Stöhr*), (Ganz-Danubius Yard, Budapest, 1918). Refitted 1928.
Details as *Debrecen* above.



SZEGED. 1925 *Official Photo.*

SZEGED (ex-*Bregainica*, ex-Austro-Hungarian *Wels*, 1915), **KECSKEMÉT** (ex-Austro-Hungarian *Viza*, 1916). Both built at Ganz-Danubius Yard, Budapest. Displacement : 133 tons. Dimensions : 144½ × 16½ × 3½ feet *mean* draught. H.P. 1100 = 15 kts. A.E.G. turbines. 2 Yarrow boilers. Tunnel screws. Guns : 2—3 inch, 2 M.G. 1 S.L. Oil fuel : 18 tons. Complement, 44. *Szeged* refitted 1921, *Kecskemét*, 1923.

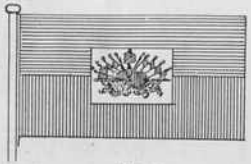
Depôt Ship.

1934 *Photo, Official.*

CSOBÁNC (Ganz-Danubius Yard, Budapest, 1928).
300 tons. Dimensions : 132 × 18 × 4½ feet.
H.P. 180 = 8 kts. 2 Diesels. Tunnel screws.
Oil : 8 tons. Complement, 18.

In addition to the above, there are a number of small Motor Launches and Guard Boats.

HAITI.



Red
White
Blue

Ensign

Patrol Vessels.

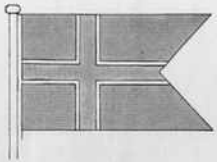
No. 2. 1937, *W. H. Davis, Esq.*

Nos. 1 and 2. Employed on Coastguard Service. Particulars wanted.

1940, *Official.*

ODINN (1938). Motor vessel of 72 tons. Gun: 1—47 mm. Speed: 11 kts.

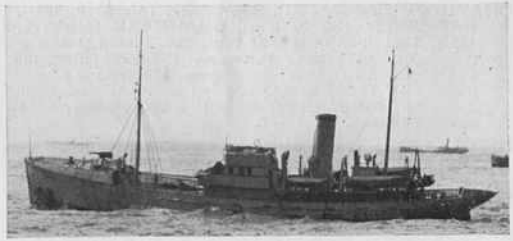
ICELAND.



Red
White
Blue

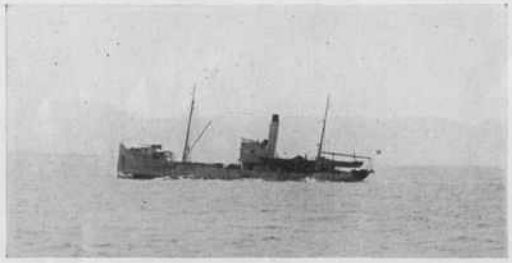
National Flag.

Fishery Protection Vessels.



1935, *Com. R. Steen Steensen, R.D.N.*

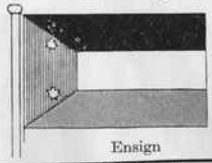
ÆGIR (April 25, 1929). Built by Burmeister & Wain, Copenhagen. 497 tons. Length: 187 feet. Complement: 25. Guns: 1—57 mm. Diesel engines. Speed: 14 kts.



1935, *Com. R. Steen Steenson, R.D.N.*

THOR (ex-German trawler *Senator Schaffer*). Built by Wollheim, Stettin, 1922, and purchased 1930. 226 tons. Complement: 18. Guns: 1—57 mm. I.H.P. 450 = 11 kts.

IRAQ



Black
White
Red
Green

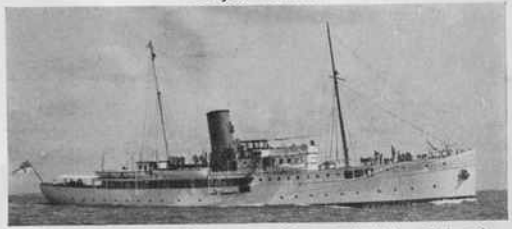
Ensign

Patrol Vessels.

1937, *courtesy Messrs. Thornycroft (builders.)*

4 *Thornycroft* type: Nos. 1, 2, 3, 4 (1937). 67 tons. 100 × 17 × 3 feet (*mean* draught). Guns: 1—3·7 inch howitzer, 4 M.G., 2—3 inch trench mortars. 2 Thornycroft Diesels of 6-cylinder type. 2 shafts. H.P.: 280 = 12 kts. Protected by bullet-proof plating. First launched April 16, 1937; all delivered by summer.

Royal Yacht.



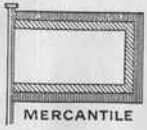
1937, *courtesy Messrs. G. L. Watson (designers).*

(Ex-*Sans Peur*, ex-*Restless*). (Clydebank, 1923). Displacement: 1,025 tons. Dimensions: 186 × 29½ × — feet. Machinery: Triple expansion. 2 shafts. I.H.P.: 850 = 13 kts. 1 oil-fired boiler.

Tug.

ALARM (ex-*St. Ewe*). (Murdoch & Murray, 1919). Displacement: 820 tons. Dimensions: 135 × 30 × 14½ feet. I.H.P.: 1,200 = 12 kts. 1 oil-fired boiler.

IRAN (PERSIA).



Personnel : 850 officers and men.

Escort Vessels.

BABR. *Added* 1936.

PALANG. 1932 *Photo, favour of the "Motorship."*

BABR (Aug., 1931), **PALANG** (Nov., 1931). Built by Cantieri Navali Riuniti, Palermo. Displacement : 950 tons. Dimensions : 204¼ (*pp.*) × 29½ × 10 feet. Guns : 3—4 inch. 2 M.G. Machinery : 2 sets Fiat Diesels. Oil fuel : 120 tons. H.P. : 1,900 = 15 kts. Complement : 85.

Gunboats

1940, *Windsor Davies, Esq.*

CHAROGH (July 26, 1931), **SIMORGH** (August 3, 1931), **KARKAS** (August 3, 1931), **CHAHBAAZ** (August 3, 1931). Laid down in 1930 at Cant. Nav. Riuniti (Palermo) (*Chahbaaz*), and Cant. Partenopei (Naples) (other 3). Displacement : 331 tons. Dimensions : 170 (*pp.*) × 22 × 6 (*mean*) feet. Guns : 2—3 inch, 2—37 mm. AA. Machinery : 2 sets Fiat Diesels. H.P. : 900 = 15·5 kts. Radius : 3,000 miles at 8 kts.

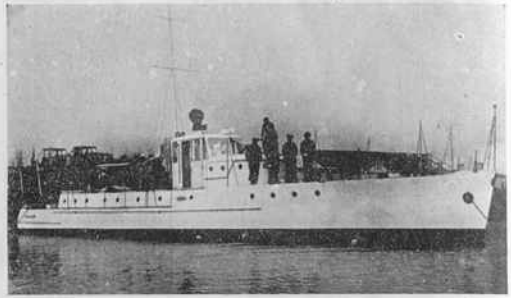
HOMAY (1931). Built in Italy. Displacement : 700 tons. No other particulars received. (Existence of this ship has been questioned.)

SHAHIN (ex-*Pahlavi*, ex-*Fatiya*, ex-*FM* 24). (Einswarden, 1917). Ex-German minesweeper, purchased 1923 for £4,000. Displacement : (*standard*) 135 tons. Dimensions : 132½ (*w.l.*) × 19⅝ × 4 feet *normal* draught. Guns : 1—3 pdr. Machinery : 2 sets triple expansion. Oil fuel : 35 tons. I.H.P. : 800 = 16 kts. (after alterations). Complement : 44.

Imperial Yacht. (*Caspian Sea*)

CHAHSEVAR (1936). Built by N.V. Boele's Scheepwerven, Bolnes, Netherlands. 530 tons. Dimensions : 176½ × 25½ × 10½ feet. 2 sets Diesels by Gebr. Stork, of Hengelo. B.H.P. : 1,300 = 15 kts.

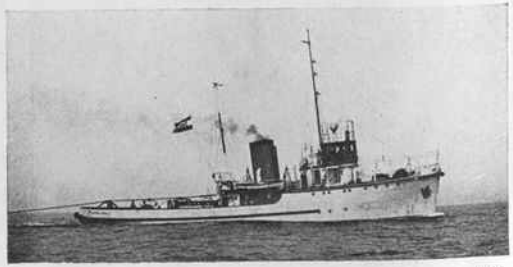
Patrol Boats.



1936

AZERBAIJAN, GEHLANI, MAZENDERAN, (Cant. Nav. Riuniti, Palermo, 1935). Displacement : 28 tons. Dimensions : 68½ × 12½ × 3½ feet. Guns : 1—37 mm. Machinery : Diesel. 2 shafts. B.H.P. : 300 = 14 kts.

Tug.



1936

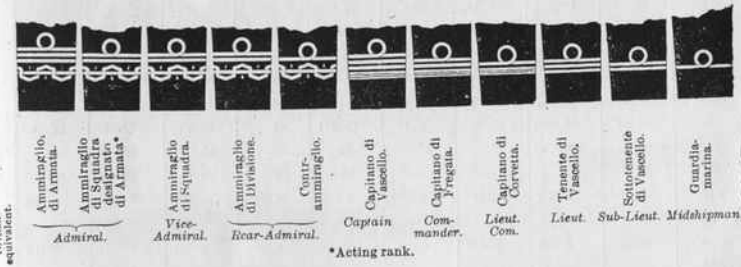
NEYROU (Cant. Nav. Riuniti, Ancona, Dec. 9, 1934). Particulars wanted.

ITALY

Uniforms.

Note.—A five pointed silver star (or gold in the case of flag officers) is worn on lapel of coat.

INSIGNIA OF RANK ON SLEEVES



*Acting rank.

The rank of Grande Ammiraglio (four stripes) equivalent to Admiral of the Fleet can only be conferred for special merit on flag officers who have commanded fleets in time of war.

Lesser ranks are: Aspirante; Allievo dell' Accademia Navale (*Naval Cadet*).

Other branches distinguished by following Colours: Armi Navali (*Ordnance Constructors*), yellow-brown; Genio Navale (*Naval Constructors* and *Engineers*), dark purple; Sanitario (*Doctors*), blue; Commissariato (*Paymasters*), red; Chemists, green; Harbour Masters, grey-green.

Note.—All officers under arms on duty wear a blue sash over right shoulder, ending in a blue knot at left hip; worn with belt. Officers on staff duty wear it on opposite shoulder, with or without belt. Tropical white tunic has insignia of rank on shoulder straps, with stars to correspond with number of stripes. Senior lieutenants wear a piece of gold under the stars of shoulder strap.

Navy Estimates

1935-36.	1,304,881,000 lire	Italian
1936-37.	1,609,891,000 ,,	,,
1937-38.	1,857,891,000 ,,	,,
1938-39.	2,013,000,000 ,,	,,
1939-40.	2,703,000,000 ,,	,,

Excluding Supplementary Credits.

Total Personnel: Officers, 4,143. Men, 70,500.

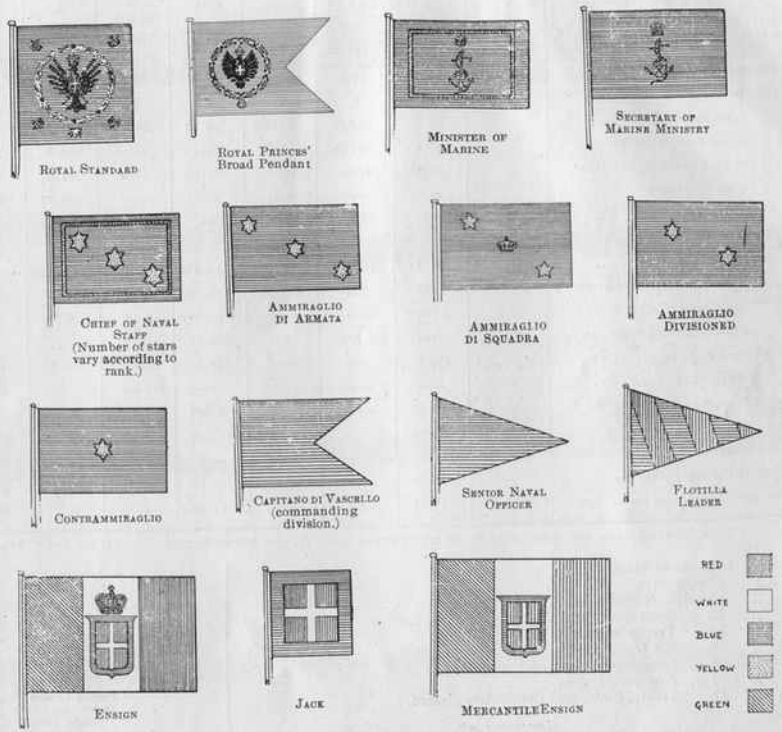
Minister of Marine: Cav. Dott. Benito Mussolini.

Secretary of Marine Ministry: Ammiraglio di Armata Domenico Cavagnari.

Deputy Chief of Naval Staff: Ammiraglio di Squadra Odoardo Somigli.

Form of Address: Capitano di Vascello—, R.N.—

Flags.



Mercantile Marine.

From "Lloyd's Register" 1939 figures.
1,235 vessels of 3,448,453 gross tonnage.

OFFICIAL TABLE OF NAVAL ORDNANCE. (Revised, 1931.)

Official Designation.—Calibre mm length cal. Mark A=Armstrong, V=Vickers An=Ansaldo, S=Schneider. Date of introduction. Mark O.T.O.=Odero-Terni-Orlando.	381/40 V. 1917	254/45 A 1907	203/54 An. 1929	203/50 S.-An. 1924	190/45 A., V. 1908-1909	152/53 An. O.T.O. 1927-29	152/50 A. 1918	152/45 S. 1911	120/50 An. 1926. O.T.O. 1931	120/50 A., V. 1909	120/45 A. 1918 O.T.O. 1928-31	102/45 S.-A. 1917	102/35 S. 1914-15	100/47 O.T.O. 1929	76/50 A., V. 1909	76/45 S. 1911	76/40 A. 1916	76/17 S. 1912
Designation by Calibre, c/m. ..	38.1	25.4	20.3	20.3	19.05	15.24	15.24	15.24	12	12	12	10.2	10·2	10.0	7.62	7.62	7.62	7.62
Calibre, in inches	15	10	8	8	7.5	6	6	6	4.75	4.75	4.75	4	4	3.9	3	3	3	3
Lengths — Total, in feet		39.07	36.545	34.593	29.22	27.83	25.94	23.42	19.57	20.38	18.38	15.715	12.247	15.721	13.271	11.722	10.292	4.593
Lengths — Rifled Bore, in inches .. .		358.4	358·66	——	281.7	——	256.6	219.2	——	204.64	174.64	150.74	114.29	12.365	126	107.2	101.57	44.88
Lengths — Powder Chamber, in inches ..		74.91	64.66	——	51.65	——	44.6	44.6	——	28.64	35.03	27.16	23.50	3.112	22	25.4	——	——
Lengths — Bore, in calibres		35.84	——	——	37.5	——	42.77	36.54	——	43.31	36.96	37.53	28.46	15.371	42	35.73	28.42	14.96
No. of Grooves		60	52	52	44	44	36	56	36	36	36	40	32	26	28	25	16	24
Twist of Rifling, in calibres ..		30	——	30	00-30	30	33	36	30	30	30	——	——	30	30	35.9	33	22
Total Weight, in tons	82	34.49	19.170	20.800	14.478	7.700	8.100	7.025	3.00	3.662	4.035	2.327	1.200	2.020	1.122	0.698	0.660	0.104
Firing Charge — Armour-piercing projectile lb.		185	112	103.19	70.987	43	——	——	19	——	——	——	——	——	——	——	——	——
Firing Charge — Common Shell H.E., lb. ..		185	——	——	70.987	——	32.79	30.64	——	14.66	9.589	9.479	6.50	10.319	3.02	3.571	2.281	0.529
Weight — Armour-piercing projectile, lb.		494	275.573	260	200.39	103.5	——	——	50.5	——	——	——	——	——	——	——	——	——
Weight — Shell H.E., lb.		489.8	——	——	498.5	——	110.22	103.61	——	48.74	48.74	30.31	30.31	30.318	14.05	14.05	13.954	11.68
Weight — Shrapnel, lb.		——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	11.68
Bursting Charge — Armour-piercing projectile, lb.		4.37	——	——	2.332	——	——	——	——	——	——	——	——	——	——	——	——	——
Bursting Charge — Shell H.E., lb.		29.86	——	——	11.706	——	5.995	7.528	——	2.711	2.711	2.866	2.866	——	1.102	1.102	——	0.782
Bursting Charge — Shrapnel, lb.		——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	0.165
Muzzle Velocity, in ft. ecs. ..		2788·77	3031.180	2743.20	2788.77	2785	2854	2723	2786	2788	2460	2788	2460	2438.40	2460	2460	2214	1230
Muzzle Energy —Total tons per sq. inch ..		17.71	——	——	17.98	——	18.37	16.86	——	18.37	15.75	18.37	18.37	——	18.37	15.75	——	12.47

Note.—German 5·9 in. and Austrian 3·9 in. are retained in ex-enemy cruisers and destroyers. There is also a new 15 inch, and an O.T.O. model 12·6 inch.

15 inch in *Littorio* class.
12.6 ,, *Cesare* class.
10 ,, 45 cal. *S. Giorgio*.
8 ,, 53 ,, *Zara* class and *Bolzano*.
8 ,, 50 ,, *Trento* classes.
7.5 ,, 45 ,, *San Giorgio*.
6 ,, 53 ,, *Condottieri* class and later types.
4.7 ,, 50 ,, *Navigatori* class.
3.9 ,, 47 ,, *Trento*, *Zara*, and *Condottieri* classes.

Displacement.

Now given in English Tons, "Standard" calculation.

Directors, Rangefinders, &c.

Supplied by the Galileo and S. Giorgio Companies, of Florence and Genoa, respectively. Rangefinders are of a new model both co-incident and stereoscopic, of 5 and 7.20 metres base for main armament and 3 metres for secondary guns.

Programmes

	1934	1935	1936	1937	1938	1939
Capital Ships ..	*Littorio* *Vittorio Veneto*	—	—	—	*Impero* *Roma*	—
Cruisers	—	—	—	—	12 *Regolo*	2
Escort Vessels ..	*Eritrea* 4 *Orsa*	—	—	—	—	—
Destroyers	—	4 *Oriani*	12 *Aviere*			8
Torpedo Boats ..	*S. Turr*	10 *Vega*	16 *Partenope*			4
Submarines ..	*Foca* *Zoea*	10 *Perla* 2 *Argo*	10 *Adua*	9 *Marcello* 3 *Brin* 7 *Adua* 1 *Atropo* (Number not specified)		12
M.T.B.	—	—	25			

Torpedoes.

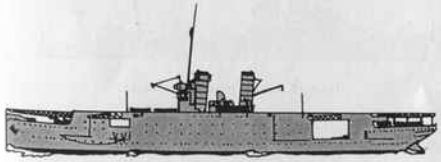
Supplied by Silureficio Italiano di Fiume.

Cal. 533·4 mm. *Length*, 7·2 m. *Charge* 250 kg. *Speed*, 4,000 m = 50 kts. 6,000 = 43 kts., 8,000 = 39 kts., 10,000 = 34 kts., 12,000 = 30 kts.

LITTORIO *class.*

CAVOUR. CESARE.

DORIA. DUILIO.



MIRAGLIA.

GORIZIA.

ZARA. FIUME.
(Differ in position of S.L. on main tripod legs.)

POLA.

BOLZANO.

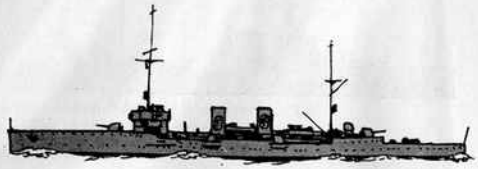
TRENTO. TRIESTE.

CONDOTTIERI *class.* "A" *type.*
(Mainmast since heightened.)

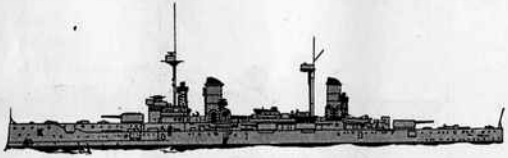
CONDOTTIERI *class.* "B" *type.*

CONDOTTIERI *class.* "C" and "D" *types.*
(former with thinner after funnel).

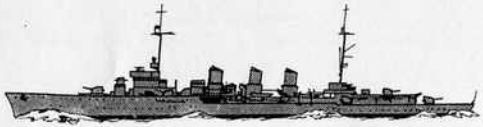
CONDOTTIERI *class.* "E" *type.*



BARI.



SAN GIORGIO.



TARANTO.

E. GIOVANNINI.

ALBATROS.

CLIMENE and PARTENOPE *classes.*

AVIERE *class.*

A. ORIANI *class.*

S. TURR.

ORSA *class.*

GRECALE *class.*

DARDO and FOLGORE *classes.*

AUDACE.

MIRABELLO *class.*
Forefunnel since heightened.)

ABBA *class.*

CURTATONE *class.*

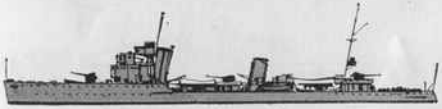
LEONE *class.*

COSENZ, & GENERALI *classes.*

CONFIENZA *class.*

SELLA *class.*

SIRTORI *class.*

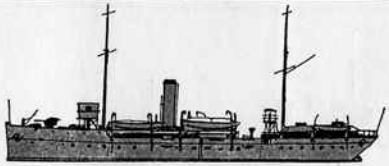


NAVIGATORI *class.*

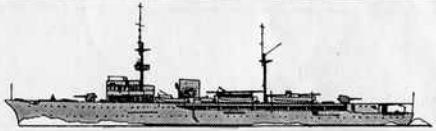
BOREA
class.

SAURO and BOREA *classes.*

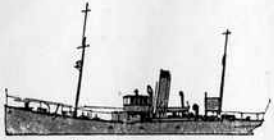
CIRENE.



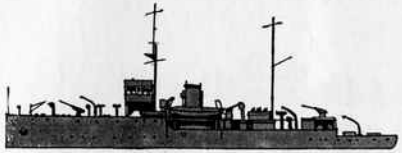
CABOTO.



ERITREA.



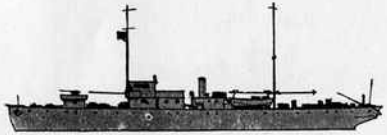
PALMAIOLA, *etc.*



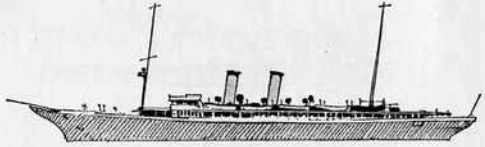
OSTIA *class.*

AURORA.

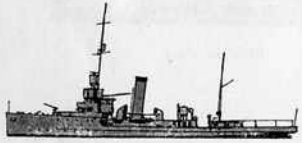
BERTA *class.*



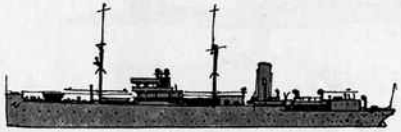
FASANA *class.*



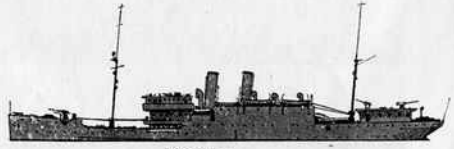
SAVOIA.



CROTONE.
VIESTI.



QUARNARO.



PACINOTTI
VOLTA.

H *class.*

X 2, X 3.

Settembrini *class.*

Delfino *class.*

Corridoni *class.*

Santarosa *class.*

Galvani *class.*

Pisani *class.*

Mameli *class.*

Balilla *class.*

Glauco *class.*

Marcello *class.*

Fieramosca.

Archimede *class.*

Micca.

Calvi *class.*

Foca *class.*

Argo *class.*

Argonauta *class.*
(Sirena and Gemma *classes* similar.)

ITALY—Cruisers, Recognition of Torpedo Craft

The following list of distinctive letters, painted on bows of destroyers, torpedo boats and allied types, has been furnished officially to "Fighting Ships" by the courtesy of the Ministry of Marine. Apparent duplication of certain letters is due to the fact that vessels in question differ noticeably in appearance.

AA	Albatros	CI	Cascino, Calipso	LC	Lince	PN	Pancaldo, Partenope
AB	Abba	CL	Cairoli, Clio	LE	Leone	PR	Prestinari, Procione
AC	Acerbi, Alcione	CM	Calatafimi	LF	La Farina	PS	Perseo Pessagno
AD	Andromeda, Audace	CN	Camicia Nera	LI	Libeccio		
AE	Ariel	CO	Centauro	LM	La Masa	RI	Riboty
AF	Alfieri	CP	Calliope	LN	Lanciere		
AI	Ascari	CR	Crispi	LP	Lupo	SA	Saetta
AL	Aquilone, Aldebaran	CS	Cassiopea, Cosenz	LR	Lira	SC	Scirocco
AN	Antares	CT	Castore, Curtatone	MA	Manin	SE	Sella
AO	Airone	CZ	Corazziere	MB	Monzambano	SF	Schiaffino
AP	Alpino			MD	Medici	SG	Sagittario
AT	Altair	DA	Dardo	MI	Mirabello	SI	Sirio
AU	Aretusa	DM	Da Mosto	ML	Maestrale	SL	Solferino
AV	Aviere	DN	Da Noli	MN	Montanari	SM	San Martino
		DR	Da Recco	MO	Malocello	SR	Sirtori
BG	Bersagliere	DV	Da Verazzano	MS	Missori	ST	Strale, Stocco
BO	Baleno	DZ	Dezza	MT	Mosto	SU	Sauro
BR	Borea			NB	Nembo		
BS	Bassini	ER	Euro	NL	Nullo	TA	Tarigo
BT	Battisti	FB	Fabrizi			TB	Turbine
		FC	Fuciliere	OA	Oriani	TI	Tigre
CA	Canopo, Carini	FG	Folgore	ON	Orione	TU	Turr
CB	Carabiniere	FL	Fulmine	OR	Orsini		
CC	Circe	FR	Freccia	OS	Orsa	US	Usodimare
CD	Castelfidardo, Carducci	GB	Gioberti	OT	Ostro		
CE	Cantore, Climene	GE	Geniere	PA	Papa, Pantera	VG	Vega
CF	Confienza	GN	Granatiere,	PC	Polluce	VI	Vivaldi
CG	Cigno	GR	Grecale	PD	Pallade		
CH	Chinotto	GV	Giovannini	PG	Pegaso	ZE	Zeno
		LA	Lampo	PI	Pigafetta		
		LB	Libra	PL	Pilo, Pleiadi		

SUBMARINE RECOGNITION LETTERS. Painted on Conning Tower.

AA	Ametista	CA	Cagni	GA	Galvani	MO	Mocenigo	SI	Sirena
AD	Adua	CC	Caracciolo	GE	Gemma	MP	Malaspina	SN	Santarosa
AG	Argonauta	CL	Cappellini	GI	Guglielmotti	MR	Manara	SP	Salpa
AH	Archimede	CN	Colonna	GM	G. Mameli	MS	Morosini	SQ	Squalo
AL	Alagi	CO	Corallo	GN	Giuliani	MU	Medusa	SR	Scire
AM	Ambra	CR	Corridoni	GO	Gondar	NA	Naiade	ST	Settembrini
AN	Anfitrite	CV	Calvi	GP	G. da Procida	NE	Nereide	TC	Turchese
AO	Argo	DA	Dagabur	GT	Galatea	NG	Neghelli	TE	Tembien
AR	Aradam	DE	Dessie	GU	Glauco	NI	Nani	TI	Toselli
AS	Ascianghi	DL	Delfino	IA	Jalea	NR	Narvalo	TL	Torricelli
AT	Atropo	DM	Diamante	IN	Jantina	OA	Otaria	TO	Toti
AX	Axum	DN	Des Geneys	IR	Iride	OC	Onice	TP	Topazio
BA	Bandiera	DO	Dandolo	LA	Lafole	ON	Ondina	TR	Tricheco
BC	Baracca	DS	Diaspro	LV	L. da Vinci	PC	P. Capponi	TS	T. Speri
BE	Berillo	DU	Durbo	LZ	Liuzzi	PN	Pisani	TT	Tarantini
BG	Bragadino	EM	E. Millo	MA	Macalle	PR	Provana	TZ	Tazzoli
BH	Bianchi	EO	Emo	MC	Micca	RS	R. Settimo	UR	Uarsciek
BI	Bagnolini	FA	Ferraris	ME	Menotti	RU	Rubino	US	Uebi-Scebeli
BL	Balilla	FB	F. di Bruno	MH	Malachite	SB	S. Bon	VL	Velella
BN	Bausan	FR	Fieramosca	MI	Millelire	SC	Sciesa	VN	Veniero
BO	Barbarigo	FO	Foca	ML	Marcello	SD	Smeraldo	ZA	Zaffiro
BR	Brin	FS	Fisalia	MN	Marconi	SE	Serpente	ZE	Zoea
BU	Beilul	FZ	Finzi				

(Littorio Class—4 Ships.)

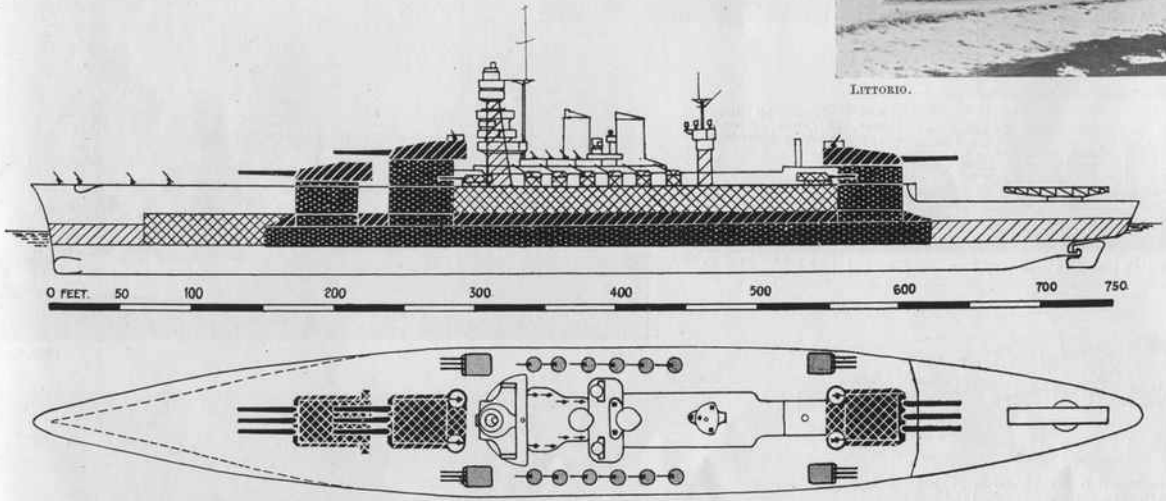
LITTORIO (Aug. 27, 1937,) **VITTORIO VENETO** (July 25, 1937), **IMPERO** (Nov. 15, 1939), **ROMA** (June 12, 1940). *Standard* displacement: 35,000 tons. Complement: 1,600. Length: 754¼ (*pp.*), 762½ (*w.l.*), 775 feet (*o.a.*). Beam: 106½ feet. Draught: 28 feet (*mean*), 30½ feet (*max.*).

Guns:
9—15 inch, 50 cal.
12—6 inch, 55 cal.
12—3·5 inch AA., 48 cal.
40 M.G. AA.

Aircraft: **3**
Catapults: **2**

Armour:
9″—12″ Belt.

Littorio. 1940.



Special Note.

One of these ships was torpedoed and completely disabled in November, 1940, at Taranto.

Machinery: Parsons geared turbines. 4 shafts. S.H.P.: 130,000 = 30 kts. (exceeded on trials.) High pressure water-tube boilers of 3-drum type. Oil fuel.

Name.	*Builder and Machinery*	*Laid down.*	*Completed.*
Littorio	Ansaldo	28 Oct., 1934	1 May, 1940.
Vittorio Veneto	C.R.D.A., San Marco, Trieste	28 Oct., 1934	30 April, 1940.
Roma	C.R.D.A., San Marco, Trieste	18 Sept., 1938	
Impero	Ansaldo	14 May, 1938	

Notes.—Designed by Engineer Inspector-General Umberto Pugliese. Though trials of these ships started in Dec. 1939, it was not until four or five months later that delivery was accepted from builders.

(Cavour Class—4 Ships.)

CONTE DI CAVOUR (Aug. 10, 1911), **GIULIO CESARE** (Oct. 15, 1911). Both reconstructed 1933–37.

CAIO DUILIO (April 24, 1913), **ANDREA DORIA** (March 30, 1913). Undergoing similar reconstruction, 1937–39.

Standard displacement (as reconstructed): 23,622 tons (over 25,000 full load). Complement: 1,198. Dimensions: 597 (*w.l.*), 611½ (*o.a.*) × 92 × 30 feet (*mean* draught).

Guns: (First pair)
10—12·6 inch, 44 cal.
12—4·7 inch.
8—3·9 inch AA.
36—M.G., AA.

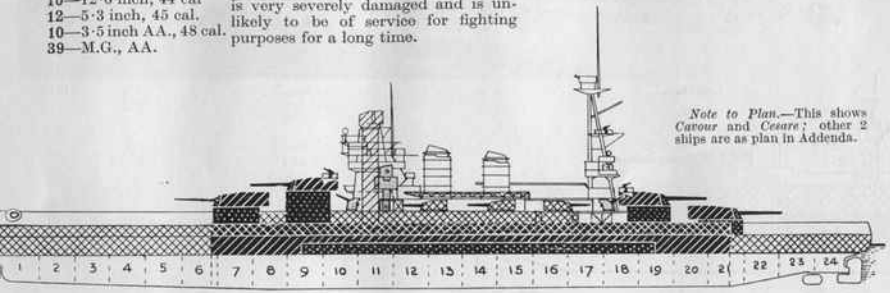
(2nd pair)
10—12·6 inch, 44 cal
12—5·3 inch, 45 cal.
10—3·5 inch AA., 48 cal.
39—M.G., AA.

Aircraft:
4, with 2 catapults.

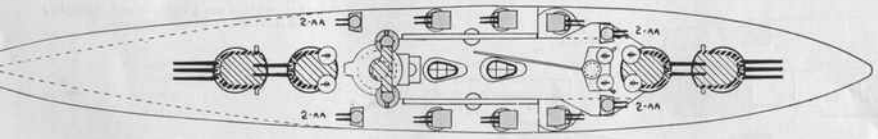
Armour (originally, now improved over magazines, machinery and boiler spaces):
9¾″–8″ Belt (amidships)
5″ Belt (ends)
9½″ Barbettes
11″ Turrets to these
11″ Conning tower (fore)

Special Note.

Two of these ships were torpedoed at Taranto in November 1940. One subsequently foundered and the other is very severely damaged and is unlikely to be of service for fighting purposes for a long time.



Note to Plan.—This shows *Cavour* and *Cesare*; other 2 ships are as plan in Addenda.



Machinery: Belluzzo geared turbines. 2 shafts. S.H.P.: 75,000 = 27 kts. 8 boilers of 3-drum type (working pressure reported to be 500 lb. to sq. inch). Oil fuel: 2,000 tons.

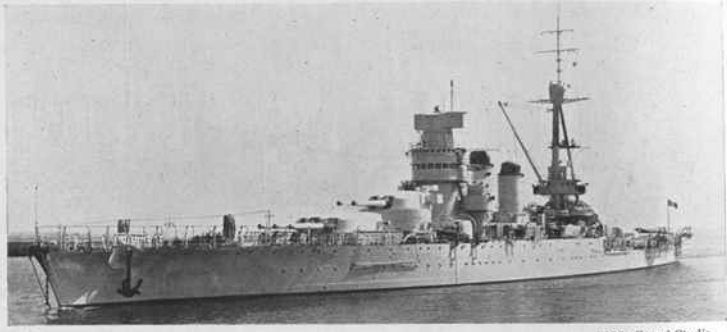
Note.—These ships were originally of entirely different appearance, with a main armament of 13—12 inch guns, in 3 triple and 2 double turrets and a secondary battery of 6-inch guns. Cost of reconstruction, Lit. 300,000,000 for the first two.

A fifth ship of this class, *Leonardo da Vinci*, blew up at Taranto on Aug. 2, 1916.

Gunnery Note.—12·6 inch guns, first mounted in these 4 ships, are of the latest Terni model, which has given remarkably successful results in proof tests. They are 43·8 calibres in length.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Rebuilt by*
Cavour	Spezia	Orlando	10/8/10	Jan. 15	Cant. Riuniti dell' Adriatico
Cesare	Ansaldo	Ansaldo	23/6/10	29/11/13	Cant. Nav. del Tirreno
Doria	Spezia		24/3/12	Mar. 16	Cant. Riuniti dell' Adriatico
Duilio	Castellammare	"	25/4/12	May 15	Cant. Nav. del Tirreno

Doria. 1940



Cesare. 1938, *Grand Studio*

Cavour. (*Another view on following page.*) 1938, *J. R. Potts, Esq.*

(Cavour Class—4 Ships.)

CONTE DI CAVOUR (Aug. 10, 1911), **GIULIO CESARE** (Oct. 15, 1911). Both reconstructed 1933–37.

CAIO DUILIO (April 24, 1913), **ANDREA DORIA** (March 30, 1913). Undergoing similar reconstruction, 1937–39.

Standard displacement (as reconstructed): 23,622 tons (over 25,000 full load). Complement: 1,198. Dimensions: 597 (*w.l.*), 611½ (*o.a.*) × 92 × 30 feet (*mean* draught).

Guns: (First pair)
10—12·6 inch, 44 cal.
12—4·7 inch.
8—3·9 inch AA.
36—M.G., AA.

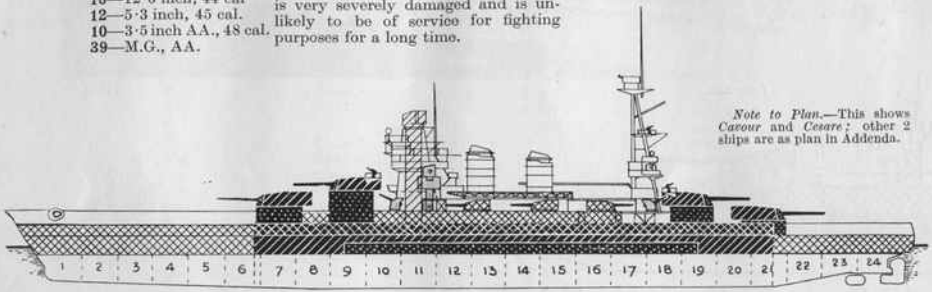
(2nd pair)
10—12·6 inch, 44 cal
12—5·3 inch, 45 cal.
10—3·5 inch AA., 48 cal.
39—M.G., AA.

Aircraft:
4, with 2 catapults.

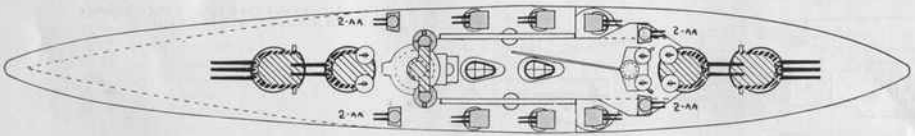
Armour (originally, now improved over magazines, machinery and boiler spaces):
9¾″–8″ Belt (amidships)
5″ Belt (ends)
9½″ Barbettes
11″ Turrets to these
11″ Conning tower (fore)

Special Note.

Two of these ships were torpedoed at Taranto in November 1940. One subsequently foundered and the other is very severely damaged and is unlikely to be of service for fighting purposes for a long time.



Note to Plan.—This shows *Cavour* and *Cesare*; other 2 ships are as plan in Addenda.



Machinery: Belluzzo geared turbines. 2 shafts. S.H.P.: 75,000 = 27 kts. 8 boilers of 3-drum type (working pressure reported to be 500 lb. to sq. inch). Oil fuel: 2,000 tons.

Note.—These ships were originally of entirely different appearance, with a main armament of 13—12 inch guns, in 3 triple and 2 double turrets and a secondary battery of 6-inch guns. Cost of reconstruction, Lit. 300,000,000 for the first two.
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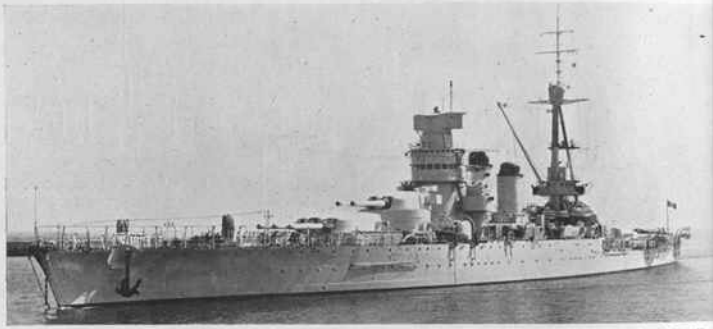
Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Rebuilt by*
Cavour	Spezia	Orlando	10/8/10	Jan. 15	Cant. Riuniti dell' Adriatico
Cesare	Ansaldo	Ansaldo	23/6/10	29/11/13	Cant. Nav. del Tirreno
Doria	Spezia	"	24/3/12	Mar. 16	Cant. Riuniti dell' Adriatico
Duilio	Castellammare		25/4/12	May 15	Cant. Nav. del Tirreno

Doria. 1940



Cesare. 1938, *Grand Studio*

Cavour. (*Another view on following page.*) 1938, *J. R. Potts, Esq.*

(Modified "Trento" Type.)

BOLZANO. Ansaldo, Sestri-Ponente. (Aug. 31, 1932).

Standard displacement, 10,000 tons. Complement, 723.
Length 627 (*p.p.*), 637½ (*w.l.*), 646¼ (*o.a.*). Beam 68 feet.
Draught 18¾ feet (*mean*).

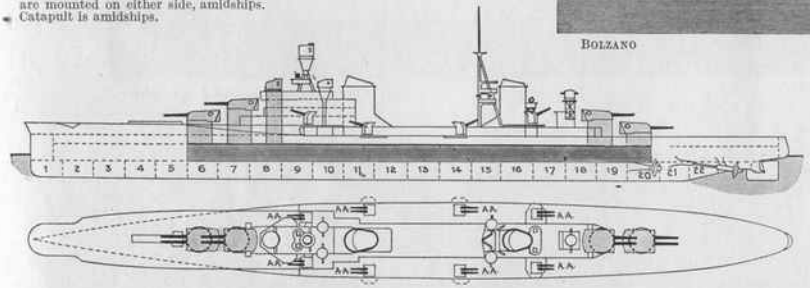
Guns:
8—8 inch. 54 cal.
12—3·9 inch. 47 cal. AA.
10—37 mm. AA.
8—13 mm. AA.

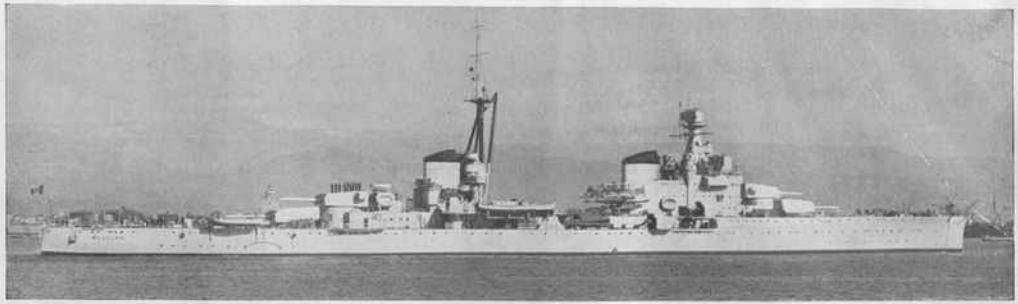
Torpedo tubes:
8—21 inch.

Aircraft:
2, with 1 catapult (amidships)

Armour (unofficial)
2¾″ side amidships.
3″ Turrets.
3″ C.T.
2″ Deck.

Note to Plan.—Aftermost pair of AA. on either side replaced by 4—13 mm. T.T. are mounted on either side, amidships. Catapult is amidships.



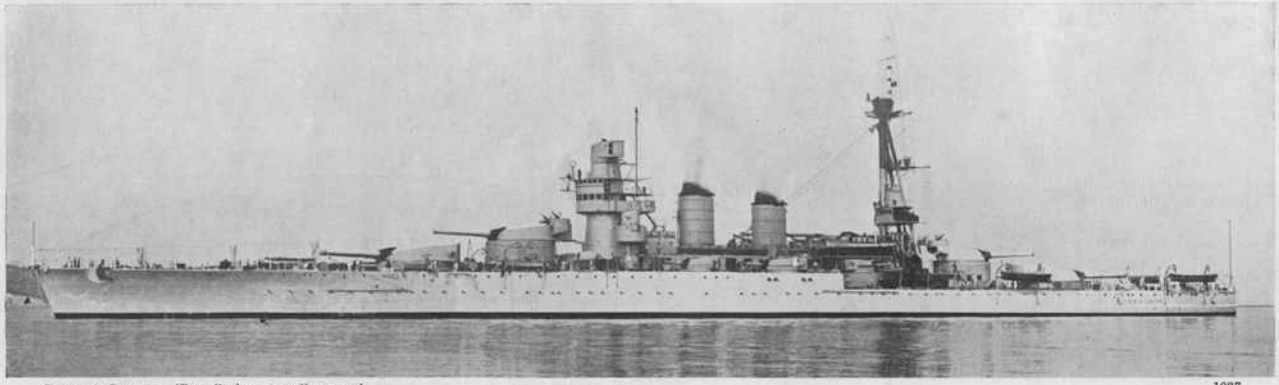


Bolzano

1935, *Sig. F. Cianciafara.*

Machinery: 4 Parsons geared turbines, S.H.P. 150,000=36 kts. 4 shafts. 10 Ansaldo 3-drum boilers (300 lbs. pressure). Oil fuel: 3,000 tons.

General Notes.—Laid down under 1929 Programme as a third unit of the *Trento* class, but differs from these in dimensions and in having a forecastle deck, besides various alterations in rig, bridgework, etc. She resembles *Trento* in sacrificing a certain amount of protection for an additional 3·5 kts. compared with *Zara*—a modern rendering of the "battle cruiser" role applied to cruisers. Speed on 8 hrs. trial=38 kts. *Max.* 39 kts. The bridge structure has been "stream-lined" flush with the funnel in order to minimise back draught at full speed, which drove the funnel fumes into the bridge. Laid down June 1930, completed Aug., 1933.



Conte di Cavour. (Described on preceding page.)

1937.

(Zara Class.—4 Ships.)

ZARA, FIUME (Both Apl. 27th, 1930), **GORIZIA** (Dec. 28, 1930), **POLA** (Dec. 5, 1931).

Standard displacement, 10,000 tons. Complement, 705.

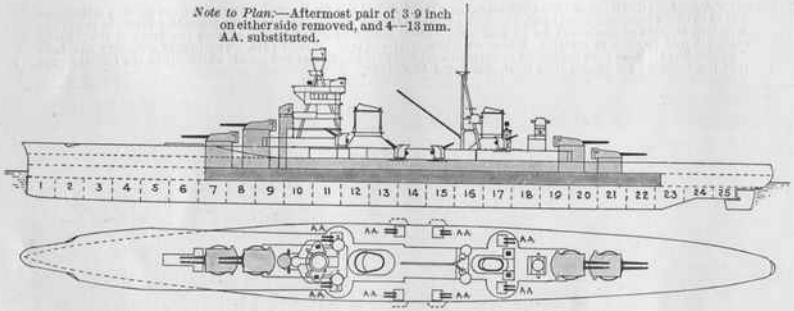
Length (*p.p.*) 589½; (*o.a.*) 599½ feet. Beam, 67⅔ feet. Draught, 19½ feet.

Guns:
8—8 inch, 54 cal.
12—3·9 inch, 47 cal.
10—37 mm. AA.
8—13 mm. AA.

Torpedo tubes:
Nil.

Aircraft:
2, with catapult.

Armour:
5½" Side .....
5" Turrets .....
4½" Transverse Bulkheads
3" C.T. .....
2" Deck .....



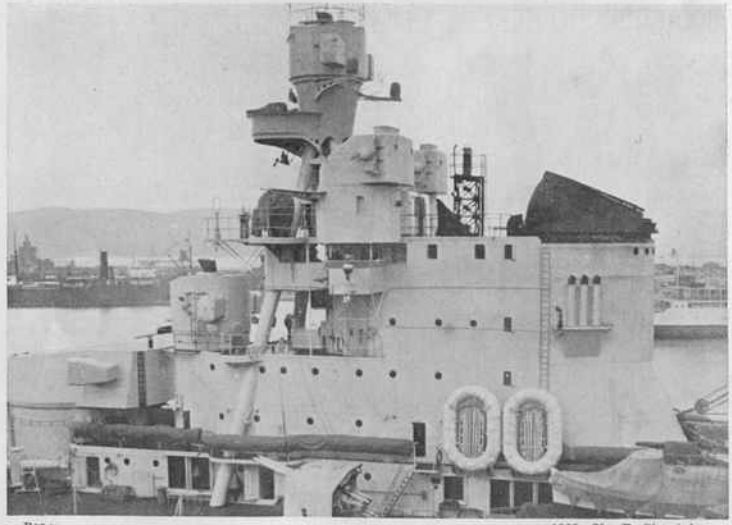
Note to Plan.—Aftermost pair of 3·9 inch on either side removed, and 4—13 mm. AA. substituted.

Machinery: 2 Parsons geared turbines. S.H.P.: 95,000 = 32 kts. 2 shafts. Oil fuel: 1,450 tons *normal*, 2,200 tons *maximum*. Radius: 3,200 miles at 25 kts. 8 boilers, 3-drum type, 300 lbs. pressure.

General Notes.—Zara, Fiume laid down under 1928 Programme, *Gorizia* under that for 1929, *Pola*, 1930.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials 8 hours.*
Fiume	Stab. Tecnico	Stab. Tecnico	Apr. '29	Nov. 1931	33·1
Zara	Odero-Terni-	Odero-Terni-	July '29	Oct. 1931	34·2
Pola	Orlando	Orlando	Mar. '31	Dec. 1932	33·9
Gorizia			Mar. '30	Dec. 1931	33·8

Zara. *Added 1940, courtesy Dott. Ing. L. Accorsi.*



Pola. 1935, *Sig. F. Cianciafara*

Observe how bridge structure has been built in flush with funnel to obviate back draught which drew fumes down on to bridge at high speed.

(Trento Class.—2 Ships.)

TRENTO (Orlando, Leghorn, Oct. 4th, 1927).

TRIESTE (Stab. Tecnico, Trieste, Oct. 24th, 1926).

Standard displacement, 10,000 tons. Complement, 723.

Length (*p.p.*), 624, (*w.l.*) 636½. (*o.a.*), 645 feet.

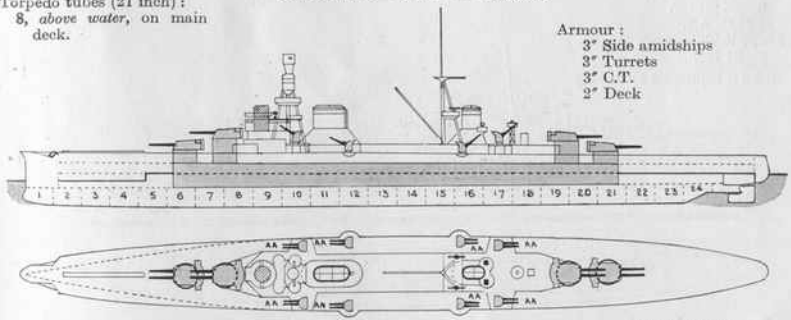
Beam, 67½ feet. *Mean* draught, 19 feet.

Guns :
8—8 inch, 50 cal.
12—3·9 inch, 47 cal.
18 smaller AA.
Torpedo tubes (21 inch) :
8, *above water*, on main deck.

Aircraft: 2, with catapult.

Note to Plan:—
Aftermost pair of 3·9 inch on either side removed, and 4—13 mm. AA. substituted.

Armour :
3″ Side amidships
3″ Turrets
3″ C.T.
2″ Deck



Plan revised 1934.

Machinery : 4 Parsons geared turbines. 4 shafts. S.H.P. : 150,000 = 35 kts. 12 3-drum boilers (300 lbs. pressure). Oil fuel : 3,000 tons.

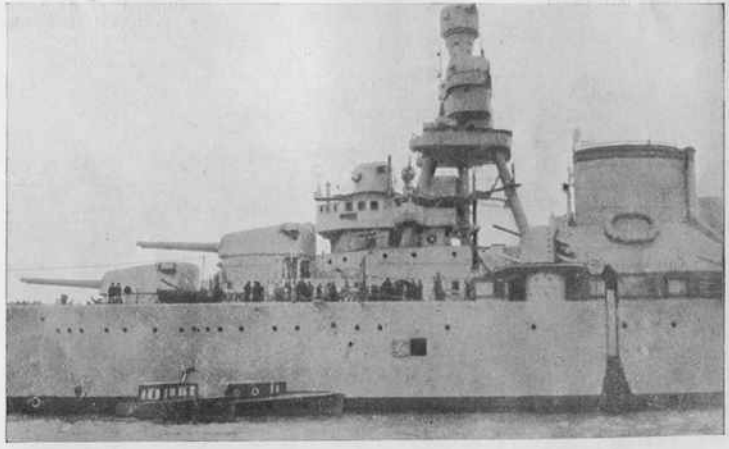
General Notes.—Laid down under 1923-24 Programme. *Trento*, 8/2/25; *Trieste*, in June, 1925. Carry three scouting seaplanes, equipped for bombing. Design modified during construction. They were originally to have had hangar amidships, but this idea has been abandoned and a catapult installed on forecastle. In the revised design, after C.T. is dispensed with, AA. armament redistributed, and additional mast control tops added. These ships are believed to be much more lightly constructed than British *Kent* class, in order to attain a high speed. Completion dates: *Trento*, April, 1929; *Trieste*, March, 1930.

Gunnery Notes.—8 inch reported to be remarkably powerful weapons with exceptional range. *Maximum* elevation is 45°.

Engineering Notes.—Trials in August, 1928, are said to have given consumption of 68 tons of oil per hour. *Maximum* figure, *Trento*, 38·7 kts. Displacement was 11,000 tons (*normal*) at the time. Average trial figures : *Trento*, 146,640 = 36·6 kts. *Trieste*, 124,761 = 35·6 kts. Weight of engines is about 33 lbs. per S.H.P.

Trento. 1933 *Photo, Official.*

To differentiate, note that in *Trieste* the lower fore top encloses all the mast legs. Also, these ships have differently marked fore funnels.



Trieste. 1932 *Lt. A. E. T. Christie, R.N.*

Building or projected.

(Ciano Class—2 Ships)

AMMIRAGLIO COSTANZO CIANO and another.

Displacement : 8,000 tons. Complement : 600.

Length : Beam : Draught :

Guns :
10—6 inch, 55 cal.

Aircraft :
4

Armour :
Believed to be somewhat more extensive than in *Garibaldi* type.

Machinery : Geared turbines.

Note.—Authorised under Programme for 1939.

Building. Will have 2 funnels.

(Regolo Class—12 Ships)

ATTILIO REGOLO, SCIPIONE AFRICANO, CAIO MARIO, CLAUDIO TIBERIO, PAOLO EMILIO, CORNELIO SILLA, OTTAVIANO AUGUSTO, POMPEO MAGNO, ULPIO TRAIANO, VIPSANIO AGRIPPA, CLAUDIO DRUSO, GIULIO GERMANICO.

Displacement : 3,362 tons. Complement :

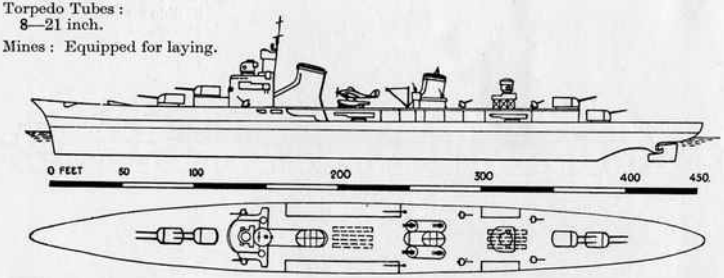
Length : (*w.l.*) 444¼ feet. Beam : 44¾ feet. Draught : 13 feet (*mean*).

Guns :
8—5·3 inch, 45 cal.
6—65 mm. AA.
14 M.G. AA.

Torpedo Tubes :
8—21 inch.

Mines : Equipped for laying.

Armour :
Practically *nil*.



Machinery : 2 sets geared turbines. 2 shafts. S.H.P. : 120,000 = 41 kts. Boilers : 4 of 3-drum type. Oil fuel.

Name.	*Builder.*	*Laid down.*	*Completed.*
A. Regolo	O.T.O., Leghorn	Sept. 1939	
Scip. Africano			
Caio Mario			
C. Tiberio	O.T.O., Spezia	1939	
P. Emilio	Ansaldo	Oct. 1939	
C. Silla			
O. Augusto	Riuniti, Ancona	23 Sept. 1939	*To be* 1941
Pompeo Magno			
U. Traiano	Riuniti, Palermo	Sept. 1939	
V. Agrippa	Tirreno	Oct. 1939	
C. Druso		Sept. 1939	
G. Germanico	Navalmeccanica, Castellammare	April 1939	

(Condottieri Class—"E" Type.)

(Garibaldi Class—2 Ships.)

GIUSEPPE GARIBALDI, LUIGI DI SAVOIA DUCA DEGLI ABRUZZI

(Both April 21, 1936.)

Standard displacement: 7,874 tons (9,000 tons full load).

Complement, 600.

Length: 593 (*w.l.*), 613¾ feet (*o.a.*). Beam, 61 feet. Draught, 17 feet (*mean*).

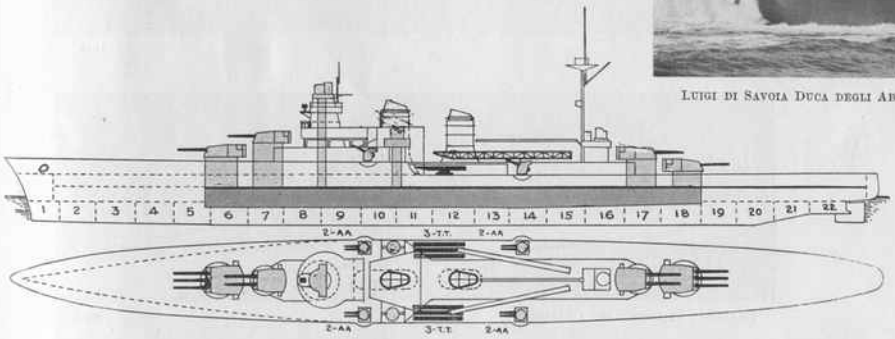
Guns:
10—6 inch, 55 cal.
8—3·9 inch, 47 cal.
8—37 mm. AA.
8—13 mm. AA.
2 D.C.T.

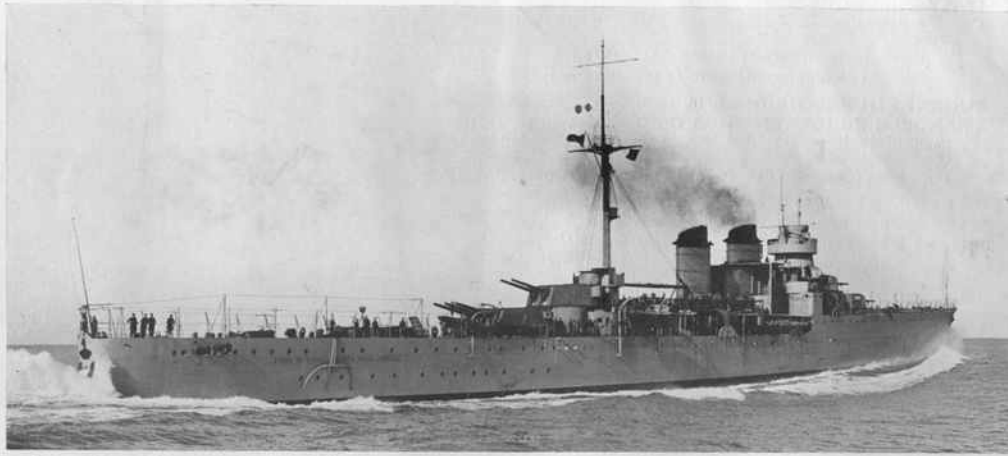
Aircraft:
4, with 2 catapults.

Armour: (*Unofficial*)
1¼"—3" Vert. Side.
1½" Deck.
1" Turrets.
1" C.T.

Torpedo tubes:
6—21 inch (tripled).

Mines:
Equipped for Minelaying.





Luigi di Savoia Duca degli Abruzzi on trials. 1937.

Machinery: Parsons geared turbines. 2 shafts. Designed S.H.P.: 100,000=35 kts. Boilers: 8, of 3-drum type. Oil fuel: 1,200 tons.

Name	*Builder*	*Laid down*	*Completed*
G. Garibaldi	C.R. dell' Adriatico	Dec. 1933	1937
Luigi di Savoia	Odero-Terni-Orlando	Dec. 1933	1937

Notes.—These ships represent yet a further expansion of the original "Condottieri" design. The 6-inch guns are a new model, more powerful than the 53 cal. weapons with which previous cruisers have been armed. *Duca degli Abruzzi* reported to have reached 38 kts. on trials.

L. di Savoia Duca degli Abruzzi at full speed. 1940. *courtesy Dott. Ing. L. Accorsi.*

(Condottieri Class.—"D" Type.)
(Emanuele Filiberto Class—2 Ships.)

EUGENIO DI SAVOIA (March 16, 1935).
EMANUELE FILIBERTO DUCA D'AOSTA (April 22, 1934).

Standard displacement: 7,283 tons. (About 8,500 tons full load.)
Complement: 551
Dimensions: 592 (*w.l.*) 610½ (*o.a.*) × 57½ × 16½ feet (*mean* draught).

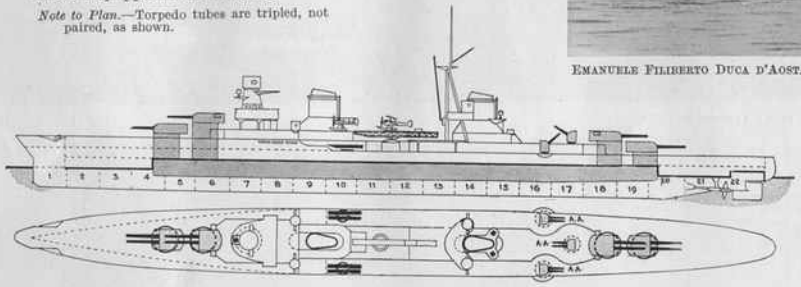
Guns: 8—6 inch, 53 cal.
6—3·9 inch, 47 cal. AA.
8—37 mm. AA.
8—13 mm. AA.
2 D.C.T.
Torpedo Tubes: 6—21 inch (tripled).

Aircraft: 3 with 1 catapult.

Armour: (*Unofficial*)
1½"–3" Vert. side.
1½" Deck.
1" Turrets.
1" C.T.

Mines: Equipped for Minelaying.

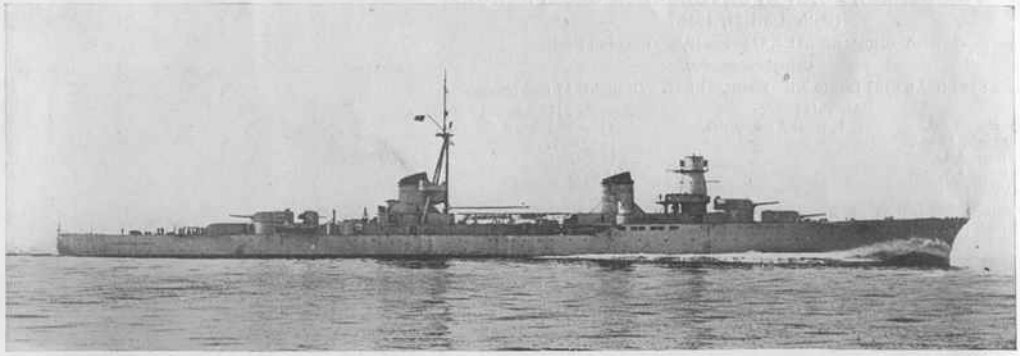
Note to Plan.—Torpedo tubes are tripled, not paired, as shown.



Machinery: Geared turbines (Belluzzo in *Eugenio di Savoia*, Parsons in *E. Filiberto*). 2 shafts. 6 boilers, 3-drum type. Designed S.H.P.: 110,000 = 36·5 kts. Oil fuel: 1,200 tons.

Name	*Builders*	*Laid down*	*Completed*
E. di Savoia	Ansaldo	Jan., 1932	Jan., 1936
E. F. Duca d'Aosta	Odero-Terni-Orlando	Jan., 1932	July, 1935

General Notes.—These two ships are enlarged editions of the *Montecuccoli* class. Reported to be very lightly constructed.



Emanuele Filiberto Duca d'Aosta 1935

Emanuele Filiberto Duca d'Aosta. 1936

Eugenio di Savoia 1937

(Condottieri Class—"C" Type.)

RAIMONDO MONTECUCCOLI (Ansaldo, Sestri Ponente, August 2, 1934).

MUZIO ATTENDOLO (Cant. Riuniti dell' Adriatico, San Marco, Trieste, September 9, 1934).

Standard displacement : 6,941 tons (about 8,000 tons full load). Complement, 522.

Dimensions : 575½ (*pp.*), 577 (*w.l.*), 597¾ (*o.a.*) × 54½ × 14¾ feet (*mean* draught).

Guns : 8—6 inch, 53 cal.
6—3·9 inch, 47 cal. AA.
8—37 mm. AA.
8—13 mm. AA.
2 D.C.T.

Aircraft : 3, with catapult.

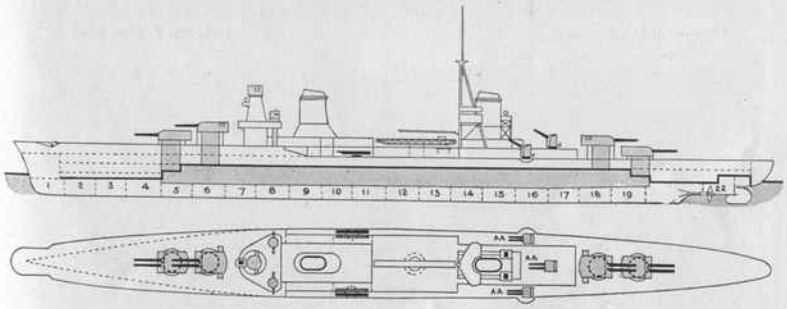
Torpedo Tubes : 4—21 inch.

Mines : Equipped for laying.

Armour :
Similar to "B" type of this class, but side armour decidedly thicker at w.l.

Muzio Attendolo 1936

R. Montecuccoli 1937



Machinery : Belluzzo and Parsons turbines, respectively. 2 shafts. 6 boilers of 3-drum type. S.H.P. : 106,000 = 37 kts. Oil fuel : 500/1,200 tons.

M. Attendolo. 1939, *Courtesy Dott. Ing. L. Accorsi.*

Note—These ships were laid down in October and September, 1931, respectively, under 1930 Programme, but construction was held up pending alterations to their plans. The simple tower forward marks the abandonment of the former tiers of bridgework and tripod mast and a Gagnotto catapult amidships replaces the fixed pattern in previous classes. Note the grouping of the AA. guns aft. Completed in July and August, 1935, respectively. *R. Montecuccoli* made 39·4 kts. on trials, without stores or ammunition on board.

("Condottieri" Class—"B" Type, 2 Ships.)

LUIGI CADORNA (Cant. Riuniti dell' Adriatico, San Marco, Trieste, Sept. 30, 1931).

ARMANDO DIAZ (Odero-Terni-Orlando, July 10, 1932).

Displacement: 5,008 tons. Complement: 500.
Dimensions: 547 (*w.l.*), 554½ (*o.a.*) × 50½ × 14 feet (*mean*) draught.

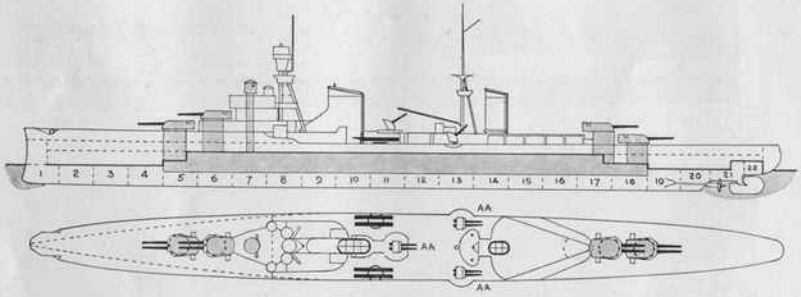
Guns:
8—6 inch 53 cal.
6—3·9 inch AA.
8—37 mm. AA.
8—13 mm. AA.
2 D.C.T.

Aircraft:
2, with Catapult.

Torpedo Tubes: 4—21 inch.

Mines: Equipped for laying.

Armour:
Thin plating only on Side, Turrets, and Decks.



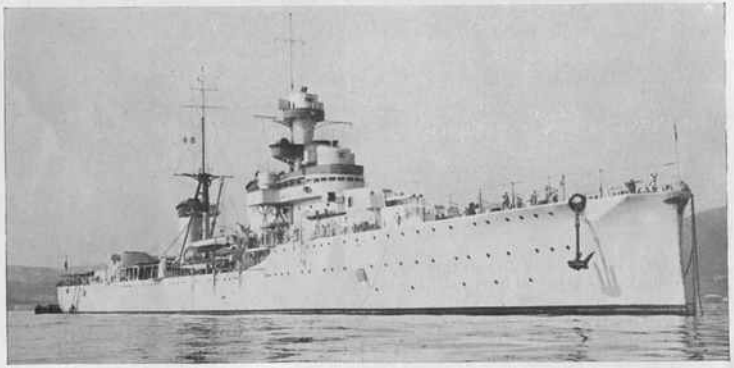
Machinery:
2 Parsons Geared Turbines. 2 shafts.
H.P. 95,000 = 37 kts. (On trials at 5,500 tons displacement *Diaz* made a mean speed of 39·78 kts. with 106,000 H.P.)

Oil: 500/1,000 tons. 6 boilers of 3-drum type.

Radius: 2,500 miles at 25 kts.

Luigi Cadorna. 1934 (added 1935) *Sig. F. Cianciafara.*

Armando Diaz. 1935, *Sig. F. Cianciafara.*



Armando Diaz. 1933 *Photo.*

General Note.—Laid down September and July, 1930, and completed in August and April, 1933, respectively. Are modified *Bande Nere* type with reduced upper works, different arrangement of rig and funnels, and altered positions of AA. guns. There is a fixed catapult training to starboard on the platform between the funnel and after turret, where aircraft are also stowed.

("Condottieri" Class—"A" Type, 3 Ships.)

GIOVANNI DELLE BANDE NERE (April 27, 1930).
ALBERTO DI GIUSSANO (April 27, 1930).
ALBERICO DA BARBIANO (August 23, 1930).

Displacement: 5,069 tons. Complement: 500.
Dimensions: 547 (*w.l.*) 555½ (*o.a.*) × 50½ × 14¼ feet (*mean* draught).

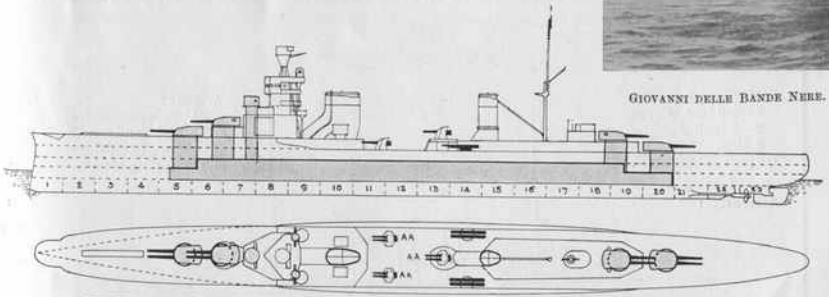
Guns:
8—6 inch, 53 cal.
6—3·9 inch AA.
8—37 mm. AA.
8—13 mm. AA.
2 D.C.T.

Aircraft: 2 with catapult

Armour:
Side, Deck, Turrets.
Thin plating only.

Torpedo Tubes (21 inch):
4 *above water* (paired).

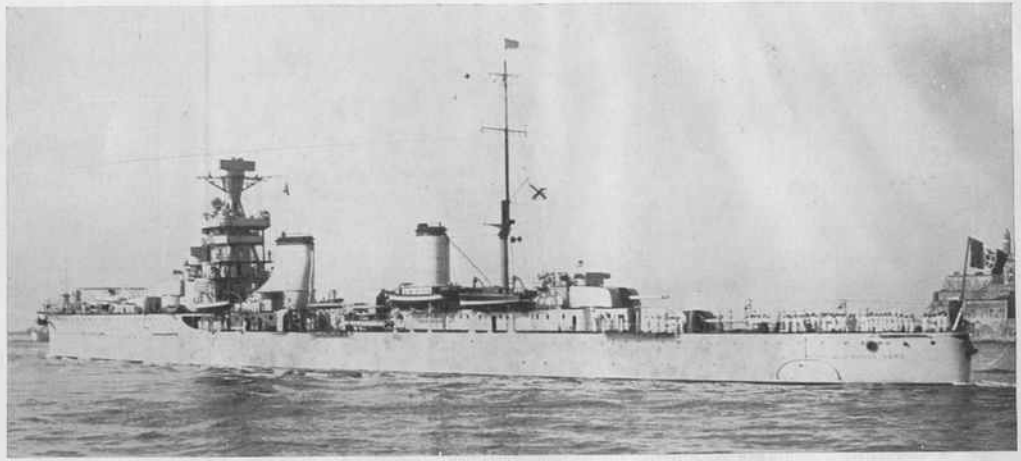
Mines: All except *Giussano* equipped for laying.



Machinery: 2 Geared Belluzzo turbines. 2 shafts. H.P.: 95,000 = 37 kts. 6 Boilers of 3-drum type. Oil: 500/1,000 tons. Radius: 2,500 miles at 25 kts.

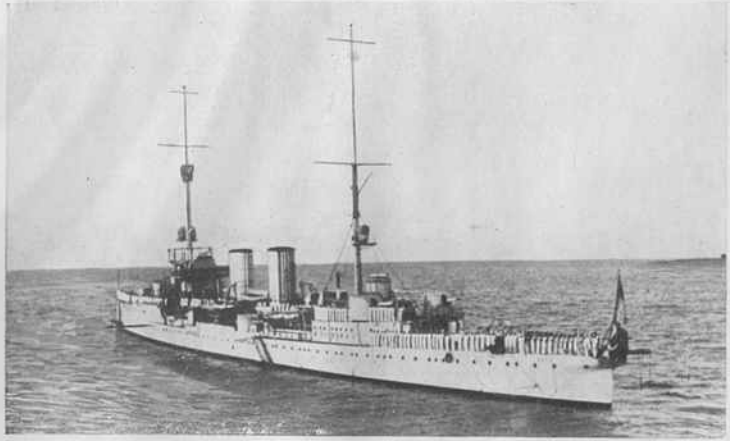
Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials* 8 hrs.
Bande Nere	Castellammare	Trieste	Oct. '28	Apr. '31	39·0 kts.
Barbiano	Ansaldo	Ansaldo	April '28	June '31	39·74 ,,
Giussano	Ansaldo	Ansaldo	Mar. '28	Feb. '31	38·95 ,,

General Notes.—This class were built as a reply to the French destroyers of the *Lion* type, over which they have every advantage. They represent a type of cruiser capable of overtaking the fastest destroyer. On trials the *A. da Barbiano* reached 42·04 knots at 5,607 tons, and maintained 39·74 knots for 8 hours with her full armament aboard. (Dec., 1930). Their appearance is particularly striking, with their lofty bridgework, squat funnels, and general effect of aggressiveness. The fire control top is 95 feet over water. A catapult of the Magaldi type is fitted along the forecastle. The policy of placing an order for three ships at once with one firm resulted in various constructional economies. Both the Ansaldo ships were launched with their masts and funnels in place and proceeded on trials very soon after taking the water.



Giovanni delle Bande Nere. 1933 *Photo, L.U.C.E.*

Alberico da Barbiano. 1935, *Bassan.*



1937, *Official.*

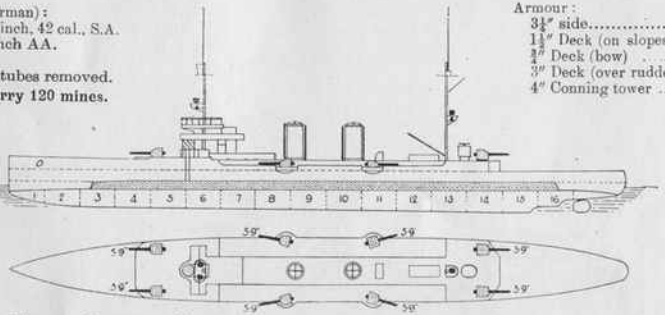
BARI (ex-German *Pillau*, ex-Russian *Muraviev Amurski*, April, 1914).

Standard displacement, 3,248 tons. *Normal* displacement, 4,600 tons. Complement, 398.

Length { 435½ feet *w.l.* / 444 feet *o.a.* } Beam, 44½ feet. { *Mean* draught, 13½ feet. / *Max.* „ 19 feet.

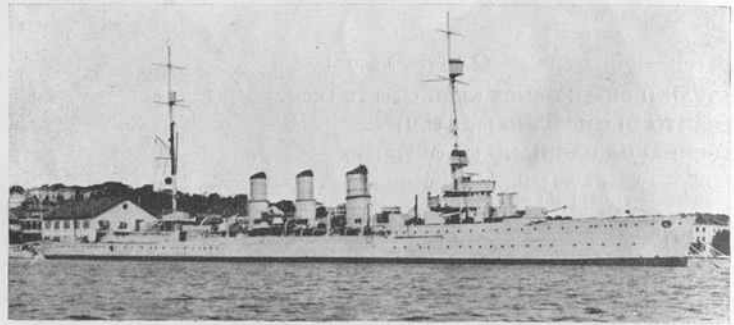
Guns (German):
8—5·9 inch, 42 cal., S.A.
3—3 inch AA.
3 M.G.
Torpedo tubes removed.
Can carry 120 mines.

Armour:
3½″ side.....
1½″ Deck (on slopes).....
¾″ Deck (bow) .....
3″ Deck (over rudder) ...
4″ Conning tower .....



Machinery: Parsons turbines. 2 screws. Designed H.P.: 21,000 = 27 kts. Boilers: 4 (renewed). Oil fuel: 1300 tons = 4,500 miles at 10 kts.

General Notes.—Built by Schichau, Danzig, April, 1913—December, 1915. A sister ship, *Elbing*, sunk in the Battle of Jutland. Both vessels were seized by Germany on outbreak of war with Russia, for whom they were originally laid down. *Bari* taken over by Italy, 1920. Refitted for Colonial service, 1935–37 when number of funnels was reduced from three to two.



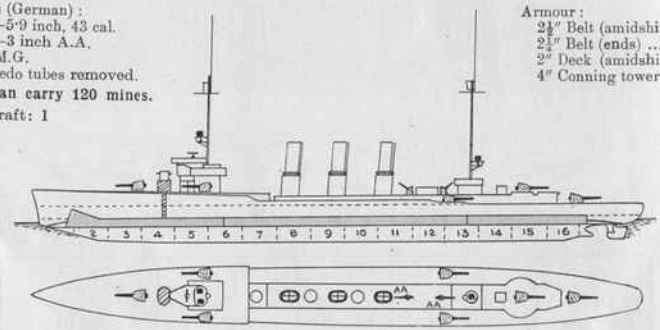
Added 1940.

TARANTO (ex-German *Strassburg*, Aug. 24, 1911).

Standard displacement, 3184 tons. *Normal* displacement, 4550 tons; 5100 tons *full load*. Complement, 445.
Length (*p.p.*) 440½ feet (*w.l.*,) 446½ feet. (455 *o.a.*) Beam, 44 feet. *Mean* draught, 12½ feet. (*Max.* 16¾)

Guns (German):
7—5·9 inch, 43 cal.
2—3 inch A.A.
3 M.G.
Torpedo tubes removed.
Can carry 120 mines.
Aircraft: 1

Armour:
2½″ Belt (amidships).....
2¼″ Belt (ends) .....
2″ Deck (amidships).....
4″ Conning tower .....

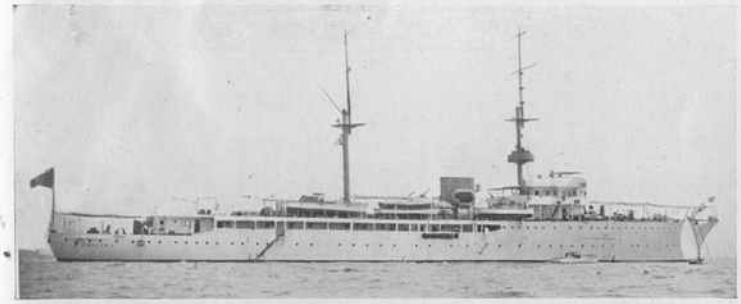


Machinery: 4 Parsons turbines. 2 screws. Boilers: 14 Schulz-Thornycroft. Designed H.P. 13,000 = 21 kts. Coal: *normal*, 880 tons; *maximum*, 1330 tons. Oil: 130 tons.

Notes.—Laid down for German Navy at Wilhelmshaven, April, 1910; completed December, 1912. Taken over by Italy, 1920. 4 boilers are oil burning. Refitted for Colonial service, 1935–37, when number of funnels was reduced from four to three.

Sloops.

(Classed as *Nave Coloniale.*)



1937, *W. H. Davis, Esq.*

ERITREA (Castellammare, Sept. 20, 1936). Standard displacement, 2,172 tons (2,500 tons full load). Dimensions: 251½ (*w.l.*), 274 (*o.a.*) × 43⅔ × 11½ feet (*mean* draught). Guns: 4—4·7 inch, 4—37 mm. AA., 2—13 mm. AA. Fitted for minelaying. Machinery: 2 Fiat Diesels, with electric drive to 2 Marelli motors. H.P.: 8,000 = 20 kts. Fuel: 320 tons.

Notes.—Ordered May 8, 1935, and laid down July 25 following. Designed by Engineer Major-General Icilio d'Esposito.

(Classed as *Aviso Veloce*)

Building or Completing.

One ship of 1,568 tons *standard* displacement was laid down in May 1939, by Cantieri Navali Quarnaro, Fiume. Dimensions: 355⅝ × 36¾ × 9½ feet. Guns: 2—3·5 inch, 4 M.G. AA. Machinery: Geared turbines. 2 shafts. S.H.P.: 30,000 = 28 kts. Boilers: 4 of 3-drum type. Oil fuel.

Gunnery Training Ship (ex-Cruiser)

1939, *Signor Aldo Fraccaroli.*

SAN GIORGIO (Castellammare D.Y. July, 1908).

Displacement: 9,232 tons. Complement, 751.

Dimensions: 430 (*pp.*) 462¼ (*o.a.*) × 69 × 22¾ (*mean*) 24 (*max.*) ft.

Guns: 4—10 inch, 45 cal.
8—7·5 inch, 45 cal.
8—3·9 inch, 47 cal.
6— M.G. AA.

Armour Terni:
8″ Belt (amidships)
2½″ Belt (ends)
1½″ & 1½″ Decks
7″ Lower deck redoubt
8″ Main barbettes
5½″ Turrets to these
7″ Citadel
6½″ Secondary turrets
9¼″ Conning towers (4)

Machinery: (Ansaldo). 2 sets 4 cylinder triple expansion. 2 shafts.
Boilers: (New in 1937), 8 (all oil-burning). Designed H.P.: 18,000 = 22 kts.
Fuel: 1,570 tons. Radius: 6,270 miles at 10 kts.; 2,640 miles at 20 kts.
Laid down July, 1905. Completed July, 1910.
Trials.—H.P. 19,595 = 23·2 kts.

Gunnery Notes.—All guns electrically controlled. Central pivot mountings. Fore 10 inch, 31 feet above waterline; after 10 inch, 22 feet; 7·5 inch guns 22 feet above water.

A sister ship, *San Marco*, has been converted into a Wireless-controlled Target Ship, as noted on a later page.

SPECIAL NOTE.

SAN GIORGIO was beached after being damaged and set on fire by air attack at Tobruk in June, 1940.

Probably she is no longer effective.

(*All fitted for Minelaying*).

11 + 8 Aviere Class.

(8 Destroyers armed with 4·7 inch guns are being built under the 1939 Programme. In all probability they will be of *Aviere* type, as described below.)

CAMICIA NERA. 1938, *Courtesy Dott. Ing. L. Accorsi.*

5 *Odero-Terni-Orlando :* ***Aviere*** (Sept. 20, 1937), ***Ascari*** (July 31, 1938), ***Camicia Nera*** (Aug. 8, 1937), ***Corazziere*** (May 22, 1938), ***Geniere*** (ex-*Pontiere*), (Feb. 27, 1938).
2 *Riuniti, Ancona :* ***Alpino*** (Sept. 18, 1938), ***Fuciliere*** (July 31, 1938).
2 *Riuniti, Palmero :* ***Bersagliere*** (July 3, 1938), ***Granatiere*** (April 24, 1938).
2 *Tirreno:* ***Carabiniere*** (July 24, 1938), ***Lanciere*** (Dec. 18, 1938)

Displacement : 1,620 tons (*standard*), about 1,900 tons full load. Complement : 165. Dimensions : 339 (*w.l.*), 350 (*o.a.*) × 38½ × 10¼ feet (mean). Guns : **4**—4·7 inch, 50 cal., **6**—37 mm. AA., **2**—13 mm. AA., 2 D.C.T. Torpedo tubes : **6**—21 inch (tripled). Machinery : 2 sets geared turbines (Parsons in O.T.O. boats, Belluzzo in others). 2 shafts. S.H.P. : 48,000 = 39 kts. 3 boilers of 3-drum type. Oil fuel : 250 tons. All laid down Jan.—May, 1937.

4 Oriani Class.

G. CARDUCCI. 1938, *Grand Studio.*

4 *Odero-Terni-Orlando :* ***Vittorio Alfieri*** (Dec. 20, 1936), ***Giosue Carducci*** (Oct. 28, 1936), ***Vincenzo Gioberti*** (Sept. 19, 1936), ***Alfredo Oriani*** (July 30, 1936). All ordered 1935. *Oriani* laid down Oct. 1935, others early in 1936. *Standard* displacement : 1,729 tons (about 1,950 tons full load). Dimensions : 341 (*w.l.*), 350½ (*o.a.*) × 33¾ × 11¼ feet (*mean*), 12 ft. (*max.*). Guns : 4—4·7 inch, 50 cal., **8**—37 mm. AA., **4**—13 mm. AA. 2 D.C.T. Torpedo tubes : **6**—21 inch (tripled). Machinery : 2 sets Parsons geared turbines. 2 shafts. S.H.P. : 48,000 = 39 kts. 3 boilers of 3-drum type. Oil fuel : 250 tons. Complement : 157

4 Grecale class.

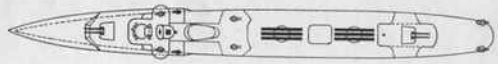
GRECALE. 1936.

LIBECCIO. 1936.

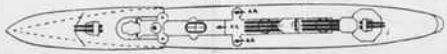
2 *Riuniti, Ancona :*—***Maestrale*** (April 15, 1934), ***Grecale*** (June 17th, 1934).
2 *Tirreno :*—***Libeccio*** (July 7th, 1934), ***Scirocco*** (April 22nd, 1934).

Displacement : 1,449 tons. Complement, 153. Dimensions : 333½ (*w.l.*), 350 (*o.a.*) × 33½ × 10 feet. Guns : **4**—4·7 inch, 50 cal., **8**—37 mm. AA., **4**—13 mm. AA. Tubes : **6**—21 inch. Machinery : 2 sets Parsons geared turbines. 2 shafts. S.H.P. 44,000 = 38 kts. 3 boilers of 3-drum type. Oil fuel : 250 tons.
Built under 1930 Programme. Laid down end 1931 and completed 1934. Are enlarged editions of the *Dardo* class with the same general design.

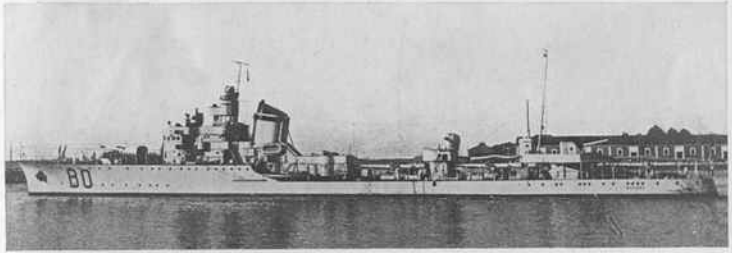
ORIANI TYPE.



(All fitted for Minelaying).



4 Folgore Class



BALENO. 1935, *Bassan.*

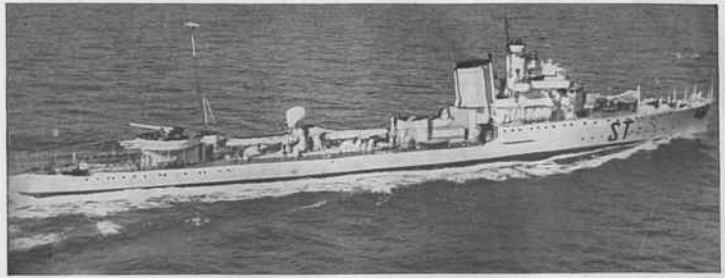
2 *Partenopei*: **Folgore** (Apl. 26th, 1931), **Lampo** (July 26th, 1931).

2 *Quarnaro*: **Baleno** (Mar. 22nd, 1931), **Fulmine** (Aug. 2nd, 1931).

Displacement: 1,220 tons (*standard*). Dimensions: 309 (*pp.*), 315½ (*o.a.*) × 30½ × 10½ feet.
Guns: 4—4·7 inch, 50 cal., 4—37 m/m. AA., 4—13 m/m. AA. Tubes: 6—21 inch, tripled.
Machinery: 2 sets Belluzzo geared turbines. 2 shafts.
S.H.P. 44,000 = 38 kts. 3 boilers of 3-drum type.
Oil: 225 tons. Complement, 150.
All ordered 1929, laid down 1930 and completed 1932.

FOLGORE. 1937, *Official*

4 Dardo Class



STRALE. Now has cinder screen to funnel. 1932 *Photo, Official.*

2 *Odero*: **Dardo** (Sept. 6th, 1930), **Strale** (Mar. 26th, 1931).

2 *Tirreno*: **Freccia** (Aug. 3rd, 1930), **Saetta** (Jan. 17, 1932).

Displacement: 1,206 tons *standard*, 1,450 tons *normal*. Dimensions: 302½ (*pp.*), 315 (*o.a.*) × 32 × 9½ feet.
Guns: 4—4·7 inch, 50 cal., 4—37 m/m. AA., 4—13 m/m. AA. Tubes: 6—21 inch, tripled.
Machinery: 2 sets Parsons geared turbines. S.H.P. 44,000 = 38 kts. 3 boilers of 3-drum type. Oil fuel: 225 tons.
Complement, 150. All ordered 1928. *Freccia* completed 1931, others 1932.

Dardo class.—As first designed these boats had two funnels and a straight bow, resembling *Turbine* in profile. During construction the design was changed, the uptakes being trunked into one stack, and the bridge and upperworks modified, while the bows were given an overhang. After launching further modifications were made, the tripod foremast was abolished, control platforms and a searchlight tower were added to the bridgework and the funnel raised.

SAETTA. Cinder screen now probably added to funnel. *Added* 1937, *Official.*

(All fitted for Minelaying.)

11* "Navigatori" class

*One has been sunk.

A. USODIMARE. 1939.

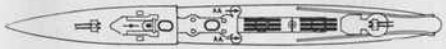
2 *Ansaldo*: ***Luca Tarigo*** (Dec. 9th, 1928), ***Lanzerotto Malocello*** (March 14th, 1929).
2 *Odero*: ***Ugolino Vivaldi*** (Jan. 9th, 1929), ***Antoniotto Usodimare*** (May 12th, 1929).
2 *Tirreno*: ***Leone Pancaldo*** (Feb. 6th, 1929), ***Antonio da Noli*** (May 21st, 1929).
2 *Riuniti* (Ancona): ***Emanuele Pessagno*** (August 12th, 1930), ***Nicoloso da Recco*** (Jan. 5, 1930).
4 *Quarnaro*: ***Nicolo Zeno*** (Aug. 11, 1928), ***Giovanni da Verazzano*** (Dec. 15th 1928), ***Alvise da Mosto.*** (July 1st, 1929), ***Antonio Pigafetta.*** (Nov. 10th, 1929.)

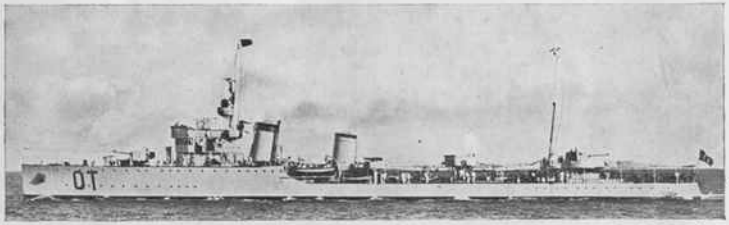
Displacement: 1,628 tons, *standard*; 2,010 tons *deep load*. Dimensions: 352 (*o.a.*), 351 (*p.p.*) × 33½ × 16½ feet. Guns: 6—4·7 inch, 50 cal., 4—37 m/m. AA., 6—13 m/m. AA. Tubes: 4—21 inch, paired. Some carry 50 mines. Machinery and boilers: 2 Parsons turbines and 4 Odero boilers in *L. Tarigo, L. Malocello, U. Vivaldi, A. Usodimare, L. Pancaldo, A. da Noli, E. Pessagno*. 2 Belluzzo turbines and 4 modified Yarrow boilers in *N. Zeno, G. da Verazzano, A. Pigafetta, A. da Mosto*; 2 Tosi turbines and 3 boilers of 3-drum type in *N. da Recco*. S.H.P. 50,000 = 38 kts.

On trials, *A. da Mosto* attained speeds of from 44 to 45 kts. with 71,000 H.P. Complement, 185.

Notes.—All ordered 1926, and laid down in 1927, except last-named pair, which were begun in 1928.

6 "Turbine" Class.





OSTRO. 1939, *courtesy Dott. Ing. L. Accorsi.*

2 *Ansaldo*: ***Borea*** (Jan. 1927), ***Ostro*** (Jan. 2nd, 1928).
2 *Odero*: ***Aquilone*** (Aug. 3rd, 1927), ***Turbine*** (21st April, 1927).
2 *Cant. del Tirreno, Riva Trigoso*: ***Euro*** (July 7th, 1927), ***Nembo*** (27th Jan., 1927).

All ordered or laid down 1924-25. Displacement: first four 1,073 tons. Remainder 1,092 tons. Dimensions: 299½ (*p.p.*), 307½ (*o.a*) × 30½ × 10½ feet. Parsons geared turbines. 3 Express boilers, with superheaters. S.H.P. 40,000 = 36 kts. Guns: 4—4·7 inch, 45 cal., 4—37 mm. AA., 2—13 mm. AA. Tubes: 6—21 inch, in triple deck mountings. Oil: 270 tons. Complement, 142.

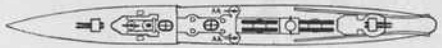
Mean speed on trials: *Euro* 38·9; *Aquilone* 39·5; *Borea* 36·5; *Espero* 38·4; *Nembo* 38·4; *Turbine* 39·6.

3 "Sauro" class.

D. MANIN. 1935, *Bassan.*

2 *Odero*: ***Cesare Battisti*** (11th Dec., 1926), ***Nazario Sauro*** (12th May, 1926).
1 *Quarnaro*: ***Daniele Manin*** (24th June, 1925). All designed by Odero and laid down 1924. Displacement: 1058 tons *standard*. Dimensions: 295½ × 30½ × 10½ feet. Parsons geared turbines. 3 Express oil-fired boilers, with superheaters. S.H.P. 36,000 = 35 kts. Guns: 4—4·7 inch, 4—37 mm. AA., 2—13 mm. AA. Tubes: 4—21 inch, in twin deck mountings. 30 mines carried. Oil: 230 tons. Complement, 142.

Mean trial figures: *Sauro* 37,000 = 36·5; *Battisti* 41,280 = 37; *Manin* 41,800 = 36·8.



Sauro and *Sella* classes

2 "Sella" class.

F. CRISPI. 1935, *Bassan.*

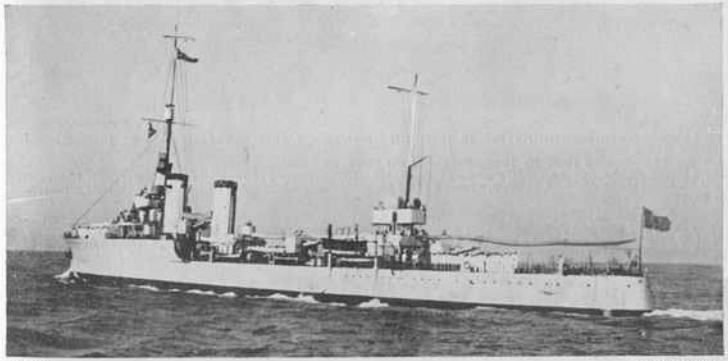
2 *Pattison*: ***Francesco Crispi*** (Oct., 1925,) ***Quintino Sella*** (25th April. 1925), Both laid down 1922-23. Displacement: 935 tons *standard*. Dimensions: 275½ × 27 × 9½ feet. Guns: 4—4·7 inch (45 cal.), 2—40 m/m AA., 2 M.G. Torpedo tubes: 4—21 inch in two pairs. Machinery: Turbines (Belluzzo in *Crispi*, Parsons in *Sella*). S.H.P.: 36,000 = 35 kts. 3 Thornycroft boilers. Oil fuel: 200 tons *normal*, 255 tons *maximum*. Radius: 2,750 miles at 15 kts. Complement: 120.

Mean speeds on trials: *Crispi* 38·6, with H.P.: 35,540, 39·4 *max.*; *Sella* 37·3, with H.P.: 35,090, 38·6 *max. Crispi* re-engined, 1937.

Note.—2 more vessels of this type, *Nicotera* and *Ricasoli*, were sold to Sweden in 1940.

3 Leone Class. *(All fitted for Minelaying).*

TIGRE. 1935, *Bassan.*



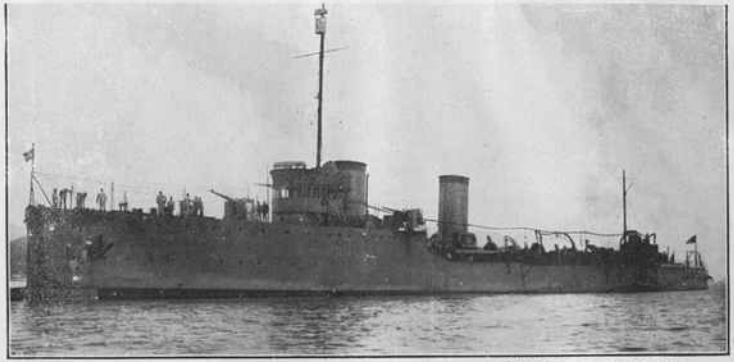
LEONE. *Added* 1936.

3* *Ansaldo*: ***Leone, Pantera, Tigre*** (1923). 1526 tons (*standard*), 2283 tons (*full load*). Dimensions: 372 (*o.a.*), 359½ (*p.p.*) × 34 × 11·5 feet (*mean*). Guns: 8—4·7 inch (45 cal.), 2—40 mm. AA., 4 M.G. Tubes: 4—21 inch. Designed S.H.P.: 40,000 = 34 kts. (Trials, 50,000 = 35 kts.). Boat recent speeds, 33 kts. or less. 2 Parsons turbines (geared). 4 Yarrow oil-burning boilers. 2 screws. Oil fuel: 200 tons *normal*, 400 tons *max.* Carry 60 mines (*normal* stowage), or 100 (*maximum*). Complement, 201.

**Leopardo* and *Lince* cancelled.*

Notes.—Internally these ships are most elaborately fitted. Each is equipped with a different system of fire-control—British, Italian and German respectively. 4·7 inch guns are paired very closely—only 1 foot apart. *Max.* elevation: 30°. Special apparatus for smoke screen production is fitted on starboard quarter of each.

2 Mirabello class.



1926 *Photo, Capitan M. Mille.*

Height of Fore-funnel reported to have been increased as in *Leone* class.

2 *Ansaldo* type: ***Carlo Mirabello*** (1914), ***Augusto Riboty*** (1915). 1383 tons. Dimensions: 331·4 (*p.p.*) × 32 × 10·6 feet (*mean*). Guns: 8—4 inch, 2—40 mm. AA., 2 M.G. Tubes: 4—18 inch. Carry 100 mines. Designed S.H.P. 35,000 = 35 kts. Made 33·75 and 35·03 kts. on *trials* respectively. 4 Yarrow oil-burning boilers. 2 Parsons geared turbines. 2 screws. Oil fuel; *normal* 200 tons, *maximum* 350 tons. Endurance: 2840 miles (15 kts.), 500 miles (full speed). Complement, 145.

*14 "Partenope" Class. *(All fitted for Minelaying)*

4 Torpedo Boats are being built under the 1939 Programme. Guns will be 3·9 inch.
*2 sunk Oct. 11th, 1940.

LUPO. 1939, *Sig. Aldo Fraccaroli.*

4 *Napoletani* boats: ***Partenope*** (Feb. 27, 1938), ***Polluce*** (Oct. 24, 1937), ***Pallade*** (Dec. 19, 1937), ***Pleiadi*** (Sept. 5, 1937.)

4 *Quarnaro* boats: ***Libra*** (Oct. 3, 1937), ***Lince*** (Jan. 15, 1938), ***Lira*** (Sept. 12, 1937), ***Lupo*** (Nov. 7, 1937).

8 *Ansaldo* boats: ***Airone*** (Jan. 23, 1938), ***Alcione*** (Dec. 23, 1937), ***Aretusa*** (Feb. 6, 1938), ***Ariel*** (March 14, 1938), ***Calipso*** (June 12, 1938), ***Calliope*** (April 15, 1938), ***Circe*** (June 29, 1938), ***Clio*** (April 3, 1938).

Standard displacement: 679 tons. Complement: 94. Dimensions: 254½ (*w.l.*), 267 (*o.a.*) × 26 × 7¾ feet (*mean*). Guns: 3—3·9 inch, 6—37 mm. AA., 2—13 mm. AA., 2 D.C.T. Tubes: 4—18 inch, paired in all *except* Quarnaro boats, which have tubes arranged as in later units of *Climene* type. Machinery: 2 sets Tosi geared turbines. 2 shafts. S.H.P.: 19,000 = 34 kts. 2 boilers of 3-drum type. All laid down Oct., 1936—March, 1937.

(All fitted for Minelaying.)

4 Orsa class.

PEGASO. *Added*, 1940.

2 *Riuniti* (*Palermo*) boats: **ORIONE** (April 22, 1937), **ORSA** (March 21, 1937).

2 *Napoletani* boats: **PEGASO** (Dec. 8, 1936), **PROCIONE** (Jan. 1, 1937).

Standard displacement: 855 tons. Dimensions: 274½ (*p.p.*), 279 (*w.l.*), 292¾ (*o.a.*) × 31 × 11½ (*max.*), 8 feet (*mean* draught). Guns: 2—3·9 inch, 47 cal., 8 M.G., 6 D.C.T. Tubes: 4—18 inch, paired. Machinery: Tosi geared turbines. 2 shafts. S.H.P.: 16,000 = 28 kts. 2 boilers of 3-drum type.

Notes.—Ordered 1935, and laid down early in 1936. Were originally rated as Escort Vessels (*Avvisi Scorta*).

1938, *courtesy Dott. Ing. L. Accorsi.*

Albatros (Cantieri Riuniti, Palermo, May 27, 1934). Displacement: 340 tons. Dimensions: 231½ × 22½ × 6 feet. Guns: 2—3·9 inch, 47 cal., 4—37 mm. AA., 4 D.C.T. Tubes: 2—18 inch. Machinery: 2 Belluzzo geared turbines, 2 shafts. S.H.P. 4,000 = 24·5 kts. 2 boilers of 3-drum type.

Note.—This vessel was originally classed as a Submarine Chaser (*Cacciasommergibili*).

14 "Climene" class.

(All fitted for Minelaying.)

PERSEO. 1938, *Cav. Angelo Priore.*

VEGA. 1937, *W. H. Davis, Esq.*

4 *Riuniti* (*Ancona*) boats: ***Centauro*** (Feb. 19, 1936), ***Climene*** (Jan. 7, 1936), ***Castore*** (Sept. 27, 1936), ***Cigno*** (Nov. 24, 1936).

2 *Tirreno* boats: ***Canopo*** (Oct. 10, 1936), ***Cassiopea*** (Nov. 22, 1936).

4 *Quarnaro* boats: ***Sirio*** (Nov. 14, 1935), ***Perseo*** (Oct. 9, 1935), ***Sagittario*** (June 21, 1936), ***Vega*** (July 12, 1936).

4 *Ansaldo* boats: ***Altair*** (July 26, 1936), ***Antares*** (July 19, 1936), ***Aldebaran*** (July 15, 1936), ***Andromeda*** (June 28, 1936).

Standard displacement: Riuniti and Tirreno boats, 652 tons; Quarnaro and Ansaldo boats, 642 tons. Respective lengths (*o.a.*) 267 and 269 feet. Beam: 27 feet. Respective draughts: 7½ and 7 feet (*mean*). Complement: 94. Guns: 3—3·9 inch, 47 cal., 6—37 mm. AA., 2—13 mm. AA., 2 D.C.T. Tubes: 4—18 inch, arranged as shown in plans below. Machinery: 2 Tosi geared turbines. 2 shafts. S.H.P.: 19,000 = 34 kts. (exceeded on trials). 2 boilers of 3-drum type. Oil fuel.

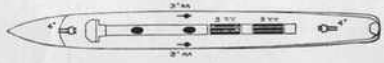
Name	*Laid down*	*Compl.*
Centauro	May 1934	1936
Climene		Apr. 1936
Perseo	Nov. 1934	Feb. 1936
Sirio		
Canopo	Dec. 1935	1936
Cassiopea		
Castore	Mar. 1936	1937
Cigno		

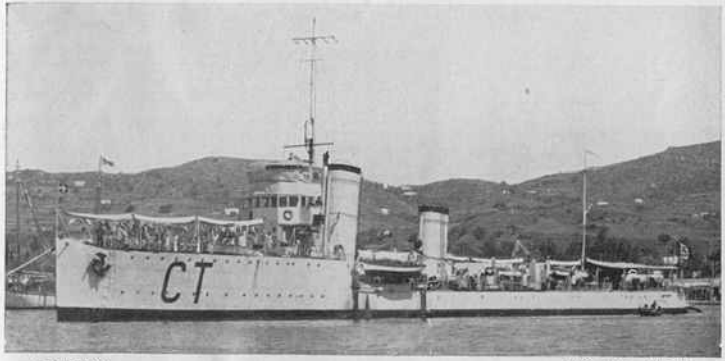
Name	*Laid down*	*Compl.*
Altair	Oct. 1935	1936
Antares		
Aldebaran		
Andromeda		
Sagittario	Nov. 1935	1937
Vega		

CENTAURO, CLIMENE.

Other boats of this class, *also* LIBRA, LINCE, LIRA, LUPO. of PARTENOPE class.

4 "Curtatone" class.





CURTATONE. 1934 *Photo, Official.*

4 *Orlando* type: ***Calatafimi*** (17th March, 1923), ***Castelfidardo*** (1923), ***Curtatone*** (1922), ***Monzambano*** (6th August, 1923). 966 tons (1190 *full load*). Dimensions 262½ × 24⅔ × 8½ feet. Guns: 4—4 inch, 2—3 inch AA. Tubes: 6—18 inch. 10 Mines. 2 Zoelly turbines. S.H.P.: 22,000 = 32 kts. 4 Thornycroft boilers. Oil fuel: 200 tons. Complement: 105.

Mean speeds on trials: *Curtatone* 36·6 *Castelfidardo* 35·5 *Calatafimi* 33·3 *Monzambano* 33·5.

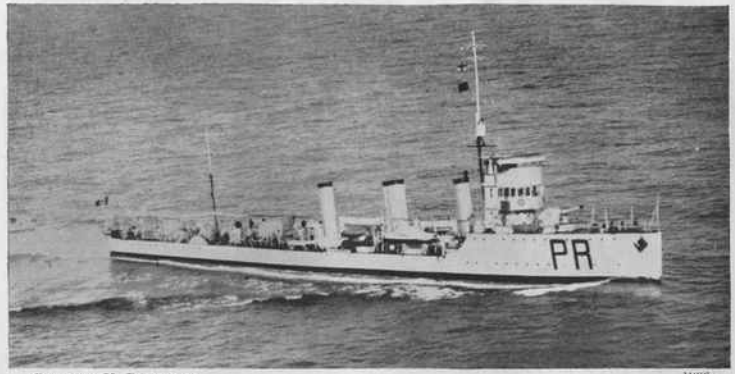
3 "Confienza" class.

SOLFERINO. 1935, *Bassan.*

3 *Orlando* type: ***Confienza*** (1920), ***San Martino*** (1920). ***Solferino*** (1920). 862 tons *standard* (1076 *full load*). Dimensions: 256½ (*p.p.*) × 24⅓ × 8½ feet (*mean*). Guns: 4—4 inch, 45 cal., 2—3 inch, 40 cal. AA., 4 M.G. Tubes. 4—18 inch in twin deck mountings. 10 mines carried. 2 Zoelly turbines. Designed S.H.P. 22,000 = 32 kts. 4 Thornycroft boilers. 2 screws. Oil: 170 tons. Complement, 105.

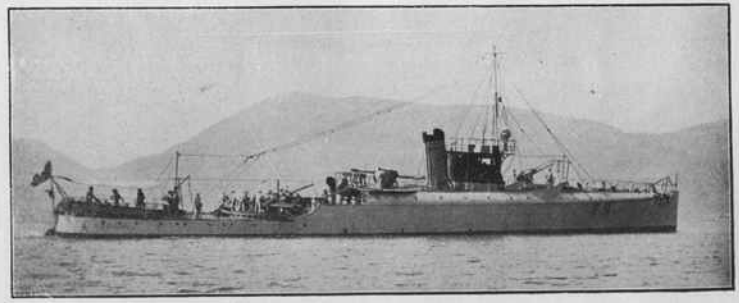
Mean speeds on trials: *Solferino* 31·9; *S. Martino* 31·1; *Confienza* 32·2.

6 "Generali" class



GENERALE M. PRESTINARI. 1936.

6 *Odero* type: ***Generale Achille Papa*** (1921), ***Generale Antonio Cantore*** (April, 1921), ***Generale Antonino Cascino*** (1922), ***Generale Antonio Chinotto*** (1921), ***Generale Carlo Montanari*** (1922), ***Generale Marcello Prestinari*** (1922). Displacement: 635 tons. Dimensions: 237·9 × 23·9 × 9 feet. Guns: 3—4 inch, 45 cal., 2—3 inch AA., 2 M.G. Tubes: 4—18 inch in two twin deck mountings. Tosi Turbines. S.H.P. 18,000 = 32 kts. (*about* 30 kts. best speed now). 4 Thornycroft boilers. Oil: 150 tons. Complement, 105. Radius: 2200 miles at 14 kts.; 600 miles at 33 kts.



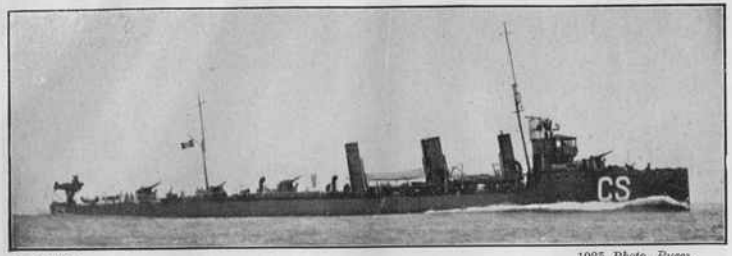
1925 *Photo, by courtesy of the Ministry of Marine.*

1 *Pattison* type: **ERNESTO GIOVANNINI** (1921). *Standard* displacement: 182 tons. Dimensions: 170½ × 19 × 5⅔ feet (*mean*). Guns: 2—4 inch, 35 cal., 2 M.G. Tubes: 2 18 inch, paired. Fitted for minelaying. Machinery: Triple expansion. 2 shafts. Designed H.P.: 2,400 = 23 kts. (Trials: 3,262 = 23·7 kts.) 2 boilers. Oil fuel: 40 tons. Radius: 900 miles at 20 kts.

Notes.—Originally classed as an Escort Vessel. Another ship of this class, *E. Rosso*, was burned on stocks and hull scrapped, while 4 others have been placed on disposal list.

7 "Cosenz" class.

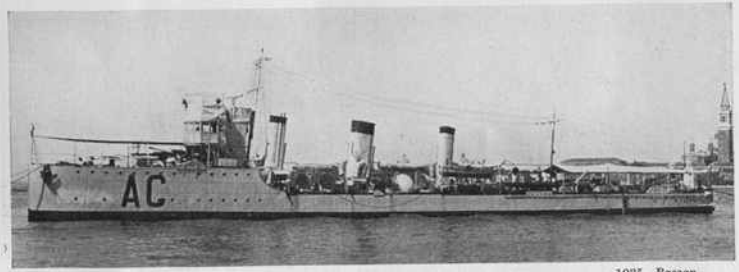
Deck Plan of COSENZ class (*Generali* class similar, but only 1—4 inch on forecastle).



E. COSENZ 1925 *Photo, Pucci.*

7 *Odero* type: ***Enrico Cosenz*** (ex-*Agostino Bertani*), ***Giacomo Medici, Giuseppe La Farina,*** and ***Nicola Fabrizi*** (all 1917); ***Angelo Bassini, Giacinto Carini, Giuseppe La Masa,*** (all 1916). 635 tons (810 *full load*). Dimensions: 238 (*p.p.*) × 24 × 9'2 feet (*mean*). Guns: 4—4 inch, 2—3 inch, AA. 4 M.G. Tubes (in all): 4—18 inch, in two twin-deck mountings. No mines carried. S.H.P. 15,500 = 32 kts. (On trials made 34'1 kts. Now good for *about* 30 kts.) Fuel: 150 tons. Complement, 100. 2 Tosi turbines. 4 Thornycroft oil-burning boilers. 2 screws. Endurance: 1700 miles (15 kts.), 470 miles (full speed). *Benedetto Cairoli* of this class, lost during War of 1914–18.

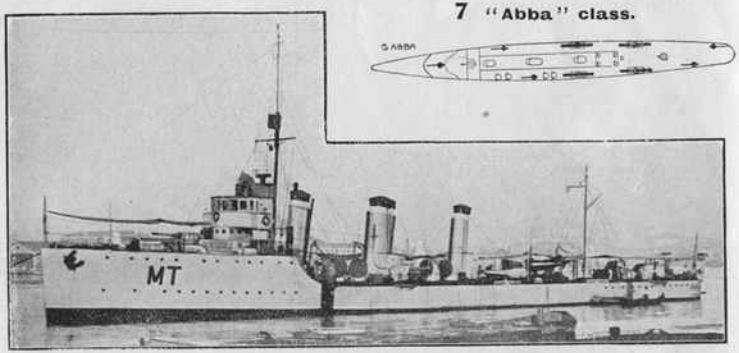
4 "Sirtori" class.



G. ACERBI. 1935, *Bassan.*

4 *Odero* type: ***Giuseppe Sirtori, Francesco Stocco, Giovanni Acerbi, Vincenzo Orsini*** (all 1916). Displacement: 669 tons *Standard*. Dimensions: 238 (*p.p.*) × 24 × 9'2 feet (*mean*). Guns: 6—4 inch, 35 cal., 3—40 m/m. AA. 4 M.G. Tubes: 4—18 inch, in twin mountings. 2 Tosi turbines. S.H.P. 15,500 = 30 kts. 4 Thornycroft oil-burning boilers. 2 screws. Radius: 1700 miles at 15 kts., 470 miles at 33 kts. Fuel: 150 tons. Complement, 100. Carry 10 mines.

7 "Abba" class.

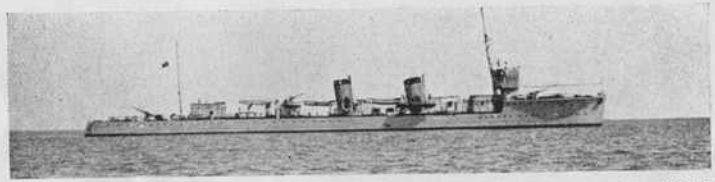


ANTONIO MOSTO. 1925 *Photo, Bassan.*

2 *Pattison* boats: ***Fratelli Cairoli,*** (*Ex-Francesco Nullo*), ***Antonio Mosto*** (both 1914).
5 *Odero boats*: ***Rosolino Pilo, Giuseppe Abba, Simone Schiaffino, Giuseppe Dezza*** (*Ex-Pilade Bronzetti*), (all 1914), ***Giuseppe Missori*** (1915). 615 tons. Dimensions: 236.2 (*p.p.*) × 24 × 8'8 feet (*mean*). Guns: 5—4 inch, 2—40 m/m. AA. 4 M.G. Tubes: 4 single 18 inch. Made about 31'8 kts. on trials. 2 Tosi turbines and 4 Thornycroft oil-burning boilers. 2 screws. Endurance: 1700 miles (15 kts.) 440 miles (full speed). S.H.P. 15,500 = 32 to 33'8 kts. except 2 Pattison boats, S.H.P. 14,500 = 30'8 kts. Fuel: 150 tons. Complement, 94.

1 "Audace" class.

Was used as Control Vessel to the Target Ship *San Marco*.



AUDACE. *Added*, 1940.

1 *Yarrow* type: ***Audace*** (ex-Japanese *Kawakaze*, Scotstoun, Glasgow 1915). 629 tons (over 1000 tons *full load*). Dimensions: 275 (*p.p.*), 283 (*o.a.*) × 27½ × 9¼ feet (*max.*). Guns: 7—4 inch, 2—40 m/m. AA. 4 M.G. Tubes: 4—18 inch, in two twin mountings. Fuel: 252 tons. 2 sets Brown-Curtis turbines and 3 Yarrow large-tube, oil-burning boilers. Endurance: 2,180 miles (15 kts.). 560 miles (full speed). S.H.P. 22,000 = 31 kts. Complement, 113.

All classed as M.A.S. (*Motoscafi Anti-Sommergibili*).

M.A.S. 530. 1940 *Official.*

Added 1940.

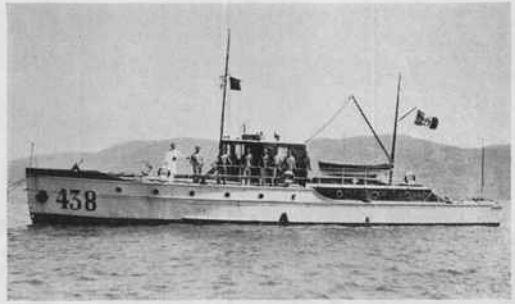
1938.

53 *Baglietto* type: Nos. **451, 452, 501-551** (1936–39). Displacement: 20 tons (*average*). Dimensions: 65¾ (*pp.*), 69 (*o.a.*) × 14¾ × 4½ feet. Armament: 2—18 inch torpedo tubes (side firing), 1 or 2 M.G. AA., 5 D.C. Machinery: 2 Isotta-Fraschini petrol engines. H.P.: 2,000 = 47 kts. Petrol: 1¼ ton. Radius: 260 miles.

1938.

Stefano Turr (Cant. Costruz. Mecc. e Aeronautica, Pisa, May 9, 1935). *Standard* displacement: 59 tons. Dimensions: 105 (*o.a.*) × 18 × 2¾ feet. Guns: 3 M.G. AA. Tubes: 4—18 inch. Machinery: 4 Fiat high speed 4-stroke Diesels. 2 shafts. H.P.: 3,000 = 34 kts. (actual speed reported to be under 30 kts.)

Note.—It is reported that this vessel is being re-engined with Isotta-Fraschini petrolmotors.



1937.

4 S.V.A.N. boats: **M.A.S. 438—441** (1935). 35½ tons. Speed: 36 kts.

1935, *Official.*

1935, *Official.*

8 S.V.A.N. boats: **M.A.S. 423, 424, 426, 430, 432, 433, 434, 437,** (1923–30). Displacement: 13½ to 14 tons. 2 M.G., 2 T.T., 5 D.C. Length over 50 feet. H.P.: 1,500 = 40 kts.

1 *Baglietto* boat: **M.A.S. 431.** (1931) 15 tons. Of similar type to above.

1919 *Photo.*

5 boats "Tipo A": **M.A.S. 204, 206, 210, 213, 216,** (S.V.A.N., Ansaldo, Orlando, Baglietto, etc., 1916–19). 12 tons. Length: 52½ feet. Motors (Isotta Fraschini): 400 to 500 B.H.P. = 26 kts. Guns: 2 M.G., 2 Torpedo tubes or dropping gears. Some carry mines.

Ocean-going types (*Sommergibili Oceanici*)

Note.—A considerable number of Italian submarines have been lost since June 10, 1940.

10 St. Bon Class.

Building or Completing.

6 authorised under 1939 Programme.

4 *Adriatico:* ***Ammiraglio Saint Bon, Ammiraglio Cagni, Ammiraglio Caracciolo, Ammiraglio Millo.*** Displacement: 1,461/—— tons. Dimensions: 288½ × 25½ × 17 feet. Guns: 2—3·9 inch, 4 M.G. Tubes: 14—18 inch. Machinery: Fiat Diesels. B.H.P.: 4,600 = 18 kts.

Note.—Last four, 1938 Programme. A remarkable feature of this type is the reversion to a smaller pattern of torpedo tube.

4 Liuzzi Class.

Photo wanted.

4 *Tosi:* ***Console Generale Liuzzi*** (Sept. 17, 1939), ***Alpino Attilio Bagnolini*** (Oct. 28, 1939), ***Reginaldo Giuliani*** (Dec. 3, 1939), ***Capitano Raffaele Tarantini*** (Jan. 7, 1940). Displacement: 1,031/—— tons. Dimensions: 252½ × 23 × 13½ feet. Guns: 2—3·9 inch, 4 M.G. Tubes: 8—21 inch. Machinery: Tosi Diesels. B.H.P.: 3,500 = 18 kts.

Note.—All belong to 1938 Programme. First 3 laid down in 1938, *Tarantini* in 1939. On diving trials in Dec., 1939, *Bagnolini* reached a depth of 62 fathoms; *Tarantini*, 60 fathoms.

6 Marconi Class.

Photo wanted.

2 *Adriatico:* ***Guglielmo Marconi,*** (July 27, 1939), ***Leonardo da Vinci.***

4 *Odero-Terni-Orlando:* ***Michele Bianchi*** (Dec. 3, 1939), ***Luigi Torelli*** (Jan. 6, 1940), ***Alessandro Malaspina*** (Feb. 18, 1940), ***Maggiore Francesco Baracca*** (April 21, 1940). Displacement: 1,036/—— tons. Dimensions: 251 × 22½ × 15½ feet. Guns: 2—3·9 inch, 4 M.G. Tubes: 8—21 inch. Machinery: Adriatico Diesels. B.H.P.: 3,600 = 18 kts.

Notes.—Built under 1938 Programme. *Bianchi* reached a depth of 63 fathoms during diving trials.

8 Cappellini Class.

Photo wanted.

(authorised under 1939 Programme.

2 *Odero-Terni-Orlando:* ***Comandante Cappellini*** (May 14, 1939), ***Comandante Faa di Bruno*** (June 18, 1939). Displacement: 951/1,270 tons. Dimensions: 239½ × 23½ × 15 feet. Guns: 2—3·9 inch, 4 M.G. Tubes: 8—21 inch. Machinery: Fiat Diesels. B.H.P.: 3,000 = 17 kts.

Notes.—Those named belong to 1938 Programme. Appear to be a modified version of *Marcello* design.

Ocean-going—*continued.*

9 "Marcello" Class.

NANI. *Added* 1940.

9 *Adriatico*: ***Dandolo, Marcello, Mocenigo*** (all Nov. 20, 1937), ***Barbarigo*** (June 12, 1938), ***Emo*** (June 29, 1938), ***Morosini*** (July 28, 1938), ***Nani*** (Jan. 16, 1938), ***Provana*** (March 16, 1938), ***Veniero*** (Feb. 14, 1938).

Displacement: 941/1,260 tons. Dimensions: 235 (*w.l.*), 239½ (*o.a.*) × 23¾ × 15½ feet (*mean*). Guns: 2—3·9 inch, 2—13 mm. AA. Tubes: 8—21 inch. 2 Sulzer Diesels by builders (except *Mocenigo* and *Veniero*, which have Fiat Diesels) and 2 electric motors. H.P.: 3,000/800 = 17/9 kts. Diving Limit, 58 fathoms.

3 "Galvani" Class.

GUGLIELMOTTI. *Added* 1940.

3 *Tosi* boats ***Brin*** (April 3, 1938), ***Galvani*** (May 22, 1938), ***Guglielmotti.*** (Sept. 11, 1938).

Displacement: 896/1,247 tons. Dimensions: 228¾ (*w.l.*), 231½ (*o.a.*) × 22½ × 13¾ feet (*mean*). Guns: 1—3·9 inch, 2 13 mm. AA. Tubes: 8—21 inch. 2 Tosi Diesels and 2 electric motors. H.P.: 3,000/840 = 17/9 kts. Diving limit, 60 fathoms.

3 Foca Class. (Minelayers).

FOCA. 1938, *courtesy Dott. Ing. L. Accorsi.*

3 *Tosi* boats: ***Foca*** (June 26, 1937), ***Zoea*** (Dec. 5, 1937), ***Atropo*** (Nov. 20, 1938). First two laid down at Taranto in January and February, 1936, respectively. *Atropo* in 1937. Displacement: 1,109/1,533 tons (*Atropo*, 1,121 tons). Dimensions: 253¾ (*w.l.*), 266½ (*o.a.*) × 23½ × 12½ feet (*Atropo*, 255½ × 23½ × 15½ feet). Guns: 1—3·9 inch, 47 cal., 2 13 mm. AA. Tubes: 6—21 inch (bow). 2 mine-discharging chutes. Fiat Diesels (except *Atropo*, which has Tosi) and 2 electric motors. H.P.: 2,880/1,250 = 16/8 kts. *Atropo* reached 58 fathoms in diving trials.

3 "Calvi" Class.

(Improved "BALILLA" design.)

G. FINZI. 1937.

G. FINZI. 1937.

3 *Odero-Terni-Orlando* type: ***Pietro Calvi*** (March 31, 1935). ***Enrico Tazzoli*** (Oct. 14, 1935). ***Giuseppe Finzi*** (June 29, 1935).

Standard displacement: 1,332/1,965 tons. Complement, 66.
Dimensions: 272 (*w.l.*), 276½ (*o.a.*) × 25½ × 13 feet (*mean*).
Guns: 2—4·7 inch, 45 cal., 4—13 mm. AA. Tubes: 8—21 inch (6 bow, 2 stern).
2 Fiat Diesels. H.P.: 4,400/1,800 = 17/8¾ kts.
Radius: *Surface*: 13,500 miles at 9 kts; *submerged*: 80 miles at 4 kts.

Notes.—Laid down 1932, under 1930 Programme. Normal diving limit, 55 fathoms (reached on trials at Spezia).

2 "Glauco" Class.

Added 1940.

2 *Bernardis* type: ***Glauco*** (Jan 5, 1935), ***Otaria*** (March 20, 1935), (Cant. Riuniti dell' Adriatico, Trieste).

Displacement: 863/1,167 tons. Complement, 48. Dimensions: 239½ × 23¼ × 14½ feet. Guns: 2—3·9 inch, 47 cal., 2—13 mm. AA. Tubes: 8—21 inch. Machinery: 2 sets Fiat Diesels. H.P. 3,000 = 17 kts. 2 motors H.P. 1,400 = 8·5 kts. *submerged.*

1 Minelaying Type

1936.

1 *Cavallini* type: ***Pietro Micca*** (Cant. Nav. Franco Tosi, Taranto, March 31, 1935). Displacement: 1,371/1,883 tons. Complement, 66. Dimensions: 296½ (*o.a.*) × 25½ × 17½ feet. Guns: 2—4·7 inch, 45 cal., 4—13 mm. AA. Mines: 40. Tubes: 6—21 inch (in bow.) Machinery: Tosi Diesels. H.P. 3,000/1,600 = 15·5 kts. *surface*, 8·5 kts. *submerged.*

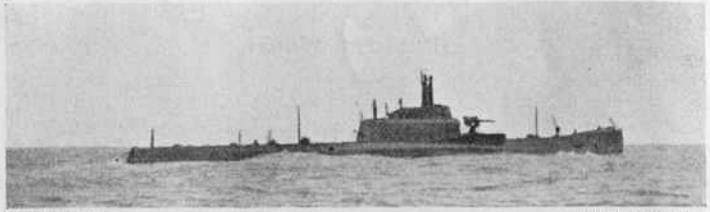
3* "Archimede" class.

*Two of these may have been lost.

G. FERRARIS. 1935, *Sig. F. Cianciafara.*

3 *Cavallini* type: ***Archimede*** (Dec. 10th, 1933), ***Evangelista Torricelli*** (May 27th, 1934), ***Galileo Ferraris*** (April 11th, 1934). Built by Cant. Nav. F. Tosi, Taranto.

Displacement: 880/1,231 tons. Dimensions: 231½ × 22½ × 13 feet. Complement, 50. Guns: 2—3·9 inch, 47 cal., 2—13 mm. AA.
Tubes: 8—21 inch.
Machinery: 2 Tosi Diesels. H.P. 3,000 = 17 kts. 2 Ansaldo Motors H.P. 1,300 = 8·5 kts. *submerged.*



E. FIERAMOSCA. *Added* 1940, *Official.*

1 *Bernardis* type: ***Ettore Fieramosca*** (April 15th, 1929). Laid down August, 1926, by Cantiere Navale Franco Tosi, Taranto. 1,340 tons *surface* displacement, 1,788 tons *submerged.* Complement, 64. Dimensions: 270½ (*o.a.*) × 27½ × 14½ feet (*mean*). Guns: 1—4·7 inch, 45 cal., 4—13 mm. AA. 8—21 inch tubes. Can carry a small seaplane. Machinery: 2 sets Tosi Diesels. B.H.P. 5,500 = 19 kts. *surface.* Electric motors, H.P. 2,000 = 10 kts. *submerged.* Fuel: 150 tons.

4 "Balilla" Class.

E. TOTI. 1939, *courtesy Dott. Ing. L. Accorsi.*

D. MILLELIRE. *Added* 1940.

4 *Odero* type: ***Balilla*** (20th Feb., 1927), ***Antonio Sciesa,*** (Aug 12th 1928), ***Enrico Toti,*** (14th April, 1928), ***Domenico Millelire*** (Sept. 19th, 1927). Built at Spezia by Odero-Terni Co. *Surface* displacement, 1368 tons; *submerged,* 1,874 tons. Dimensions: 282 (*o.a.*) × 24½ × 14 feet *mean* draught. Guns: 1—4·7 inch, 45 cal., 4—13 mm. AA. Tubes: 6—21 inch (4 bow, 2 stern). Complement: 64. Machinery: 2 sets Fiat Diesels, of H.P: 4,400 = 17·5 kts. *on surface*; electric motors of H.P.: 2,200 = 9·5 kts. *submerged.* Fuel: 140 tons.

Note.—Above submarines are designed for deep diving, and are of exceptionally strong construction. The design of these boats embodies a number of innovations, such as the placing of the Diesel engines and electric motors much further forward than usual; the elimination of bow hydroplanes; novel distribution of ballast tanks; and an improved form of hull. In consequence, an unprecedented degree of safety, both in diving and manœuvring is claimed for this type. They were laid down early in 1925. *Millelire* reached a depth of 66 fathoms in diving trials, May 1928, and in 1930 remained submerged off the mouth of the Gambia for 36 hours. In 1934 *Toti* and *Sciesa* cruised right round Africa (15,000 miles) in 5½ months.

2 "Argo" Class.

VELELLA 1937, *W. H. Davis, Esq.*

2 *Adriatico* boats: ***Argo,*** (Nov. 24, 1936), ***Velella*** (Dec. 18, 1936). Laid down at Monfalcone, Sept., 1935. Displacement: 689/857 tons. Dimensions: 195¾ (*w.l.*), 206¾ (*o.a.*) × 22¾ × 10½ feet (*mean*). Guns: 1—3·9 inch, 47 cal., 2 M.G. AA. Tubes: 6—21 inch (bow). Fiat Diesels and 2 electric motors. H.P.: 1,350/800 = 14/8 kts.

Note.—These two submarines were originally put in hand for the Portuguese Navy, but after cancellation of the contracts they were taken over by the Italian Government.

25 "Gemma" Class.

DESSIE 1938, *courtesy Dott. Ing. L. Accorsi.*

1937 Programme:
4 *Odero-Terni-Orlando:* ***Beilul*** (May 22, 1938), ***Lafole,*** (April 10, 1938). ***Scire*** (Jan. 6, 1938). ***Tembien*** (Feb. 6,1938).

2 *Tosi:* ***Varsciek,*** (Sept. 19, 1937), ***Uebi Scebeli,*** (Oct. 3, 1937).

1936 Programme:
4 *Odero-Terni-Orlando:* ***Asclanghi*** (Dec. 5, 1937), ***Gondar*** (Oct. 3, 1937), ***Macalle*** (Oct. 29, 1936), ***Neghelli*** (Nov. 7, 1937).

4 *Adriatico:* ***Adua*** (Sept. 13, 1936), ***Alagi*** (Nov. 11, 1936), ***Aradam*** (Oct. 18, 1936), ***Axum*** (Sept. 27, 1936).
2 *Tosi:* ***Dagabur, Dessie*** (both Nov. 22, 1936.)

1935 Programme:

5 *Adriatico:* ***Berillo*** (June 14, 1936), ***Corallo*** (Aug. 2, 1936), ***Diaspro*** (July 5, 1936), ***Gemma*** (May 21, 1936), ***Turchese*** (July 19, 1936).
4 *Odero-Terni-Orlando:* ***Ambra*** (May 28, 1936), ***Iride*** (July 30, 1936), ***Malachite*** (July 15, 1936), ***Onice*** (June 15, 1936.)

Displacement: 620/853 tons, *except* O.T.O. vessels, 615, and Tosi, 613 tons. Dimensions: 195 (*w.l.*), 197¾ (*o.a.*) × 21 × 13 feet (*mean*). *Corallo, Turchese,* and 4 of *Adua* group, Adriatico-Sulzer Diesels; *Ambra, Malachite,* and Tosi boats, Tosi Diesels; all the remainder have Fiat type. Armament, horsepower, and speed same as *Sirena* class (following). Diving limit: 50 fathoms.

Note.—Brazilian submarines *Tamoyo, Timbyra* and *Tupy* were originally units of this class, and first bore the respective names *Asclanghi, Gondar* and *Neghelli.*

12 "Sirena" Class.

DIAMANTE 1935, *Sig. F. Cianciafara.*

6 *Adriatico:* ***Sirena*** (Jan. 26, 1933), ***Naiade*** (March 27, 1933), ***Nereide*** (May 25, 1933), ***Anfitrite*** (Aug. 5, 1933), ***Galatea*** (Oct. 5, 1933), ***Ondina*** (Dec. 2, 1933).
2 *Tosi:* ***Diamante*** (May 21, 1933), ***Smeraldo*** (July 23, 1933).
2 *Odero-Terni-Orlando:* ***Ametista*** (April 26, 1933), ***Zaffiro*** (July 28, 1933).
2 *Quarnaro:* ***Rubino*** (March 29, 1933), ***Topazio*** (May 15, 1933).

Displacement: 590/787 tons. Dimensions: 194½ (*w.l.*), 197½ (*o.a.*) × 21 × 12 (*mean*). 13¾ feet (*max.*). Guns: 1—3·9 inch 47 cal., 2—13 mm. AA. Tubes: 6—21 inch. Machinery: 2 sets Fiat Diesels in all except Tosi and Quarnaro vessels, which have 2 sets Tosi Diesels. H.P. 1,350/800 = 14/8·5 kts. Complement 41.

7 Argonauta Class. (*Bernardis type*).

ARGONAUTA. 1935, *Sig. F. Cianciafara.*

3 *Adriatico:* ***Argonauta*** (Jan 19, 1931), ***Fisalia*** (May 2, 1931), ***Medusa*** (Dec. 12, 1931).
2 *Tosi:* ***Serpente*** (Feb. 28, 1932), ***Salpa*** (May 8, 1932).
2 *Odero-Terni-Orlando:* ***Jalea*** (June 15, 1932), ***Jantina*** (May 16, 1932).

Displacement: 599/778 tons. Dimensions: 200½ (*w. l.*), 201¾ (*o.a.*) (except Tosi boats 218 *o.a.*) × 18½ × 14½ feet. Guns: 1—4 inch, 35 cal., 2—13 mm. AA. Tubes: 6—21 inch. Machinery: 2 sets. Fiat Diesels in *Argonauta, Fisalia, Jalea, Jantina*; 2 sets Tosi Diesels in *Serpente, Salpa*; 2 sets Adriatico type in *Medusa.* H.P.: 1,200/800 = 14/8·5 kts. Complement: 41.

Coastal—*continued*

2 "Settembrini" Class.

LUIGI SETTEMBRINI. 1935, *Sig. F. Cianciafara.*

2 *Carallini* type: ***Luigi Settembrini,*** (Sept. 28, 1930), ***Ruggiero Settimo*** (March 29, 1931), (Cant. Nav. F. Tosi, Taranto). 798 tons *surface* and 1,134 tons *submerged*. Complement, 48. Dimensions: 225¼ (*w.l.*), 226¾ (*o.a.*) × 25½ × 11½ feet (*mean*). 2 Tosi Diesels. H.P. 3,000 = 17·5 kts. Electric motors, H.P. 1,400 = 9 kts. *submerged*. Guns: 1—4 inch, 2—13 mm. AA. Tubes: 8—21 inch. Radius: 9,000 miles at 8 kts. *surface*, 80 miles *submerged*.

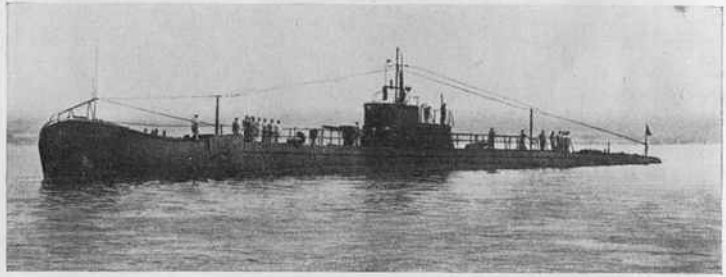
4 "Squalo" Class.

TRICHECO. 1934 *Photo, Pucci.*

4 *Bernardis* type: ordered 1928 from Cant. Nav. Triestino, Monfalcone: ***Delfino*** (April 27, 1930), ***Narvalo*** (March 15, 1930), ***Squalo*** (Jan. 15, 1930), ***Tricheco*** (Sept. 11, 1930).
Names translated are respectively *Dolphin, Swordfish, Shark, Walrus.*

Displacement: 810/1,077 tons. Complement, 48. Dimensions: 229 × 18¾ × 16½ feet. Machinery: 2 sets Fiat Diesels, H.P. 3,000 = 16·5 kts. 2 electric motors. H.P. 1,400 = 9 kts. Guns: 1—4 inch, 2—13 mm. AA. Tubes: 8—21 inch. *Delfino* has dived to 58 fathoms.

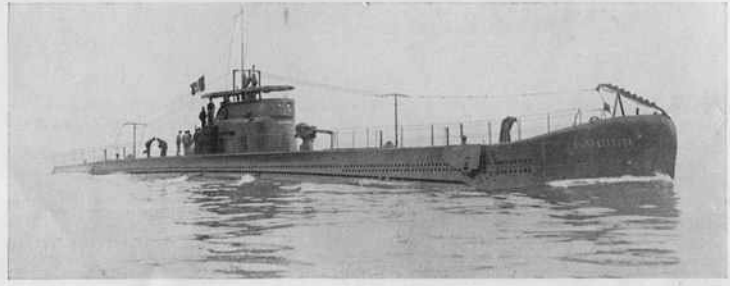
2 "Corridoni" Class (*Minelayers*).



F. CORRIDONI. *Added* 1935, *Official.*

2 *Bernardis* type: ***Marcantonio Bragadino*** (July 3rd, 1929), ***Filippo Corridoni.*** (March 30th, 1930). Both by Cant. Nav. F. Tosi, Taranto. Displacement: 803 tons *surface*, 1,051 tons *submerged*. Complement, 47 Dimensions: 232¾ (*w.l.*), 234¼ (*o.a.*) × 20 × 13½ feet (*mean*). 2 Tosi Diesels of H.P. 1,500 = 14 kts. *surface* speed. Electric motors of 1,000 H.P. = 8 kts. *submerged*. Guns: 1—4 inch, 2 M.G. Tubes: 4—21 inch. 2 mine-launching chutes. 24 mines.

4 "Santarosa" Class.



SANTAROSA. 1934 *Photo, Pucci.*

4 *Bernardis* type: ***Santorre Santarosa*** (Oct. 22nd, 1929), ***Ciro Menotti*** (Dec. 29th, 1929), (both Odero-Terni Co., Spezia); ***Fratelli Bandiera*** (Aug. 7th, 1929), ***Luciano Manara*** (Oct. 5th, 1929), (both Cant. Nav. Triestino, Monfalcone).

Displacement: 815 tons on *surface*, 1,078 tons *submerged*. Complement, 48. Dimensions: 227½ (*w.l.*), 229 (*o.a.*) × 23¾ × 13½ feet (*mean*). 2 Fiat Diesels. H.P. 3,000 = 17·5 kts. *surface*; electric motors, B.H.P. 1,300 = 9 kts. *submerged*. Guns: 1—4 inch, 3—13 mm. AA. Tubes: 8—21 inch. Are an improvement of *Pisani* design. Ordered 1928, and completed 1930.

Coastal—*continued.*

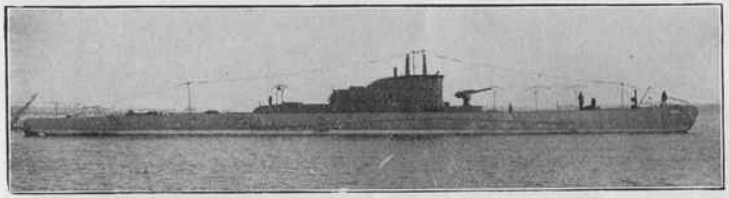
4 "Pisani" class.

VITTOR PISANI. 1930 *Official Photo.*

M. COLONNA. 1930 *Official Photo.*

4 *Bernardis* type: ***Vittor Pisani*** (Nov. 24, 1927), ***Giovanni Bausan*** (March 24, 1928), ***Marcantonio Colonna*** (Dec. 26, 1927), ***Ammiraglio des Geneys*** (Nov. 14, 1928). Ordered from Cantiere Navale Triestino, Monfalcone, 1924–25. Displacement: 791 tons *on surface*, 1,040 tons *submerged*. Dimensions: 223 × 19 × 14 feet. Machinery: 2 Tosi Diesels, H.P.: 2,700 = 17·5 kts. *on surface*. Electric motors of 1,200 H.P. = 9 kts. *submerged*. Guns: 1—4 inch, 2—13 mm. A.A. Tubes: 6—21 inch. Complement, 46.

4 "Mameli" class.

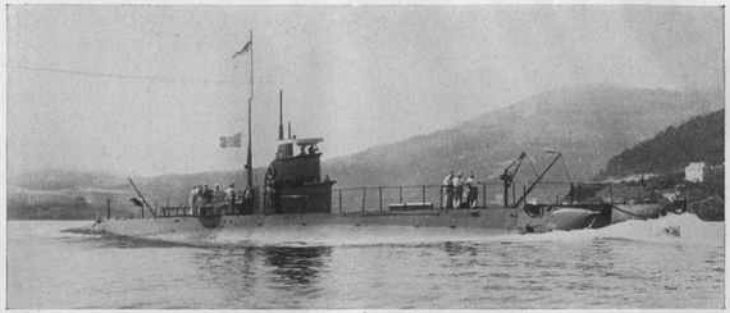


G. MAMELI. 1928 *Official Photo.*

4 *Cavallini* type: ***Goffredo Mameli*** (ex-*Masaniello*, 9th Dec., 1926), ***Pier Capponi*** (19th June, 1927), ***Tito Speri*** (May 25, 1928), ***Giovanni da Procida*** (April 1, 1928). Ordered from Cantiere Navale F. Tosi, Taranto, 1924–25. Displacement: 770 tons *on surface*. 994 tons *submerged*. Dimensions: 213¼ × 21¼ × 13 feet. 2 Tosi Diesel 8-cyl. 4-cycle engines. H.P.: 3,000 = 17 kts. *on surface*. Electric motors of 1,100 H.P. = 9 kts. *submerged*. Guns: 1—4 inch, 2—13 mm. A.A. Torpedo tubes: 6—21 inch. Complement, 46.

Note.—In March, 1929, *G. Mameli* dived to a depth of 64 fathoms during trials, remaining submerged for 20 minutes, and in March, 1930, to 58 fathoms for 1 hour.

5 "H" Class



H. 2. 1931 *Photo.*

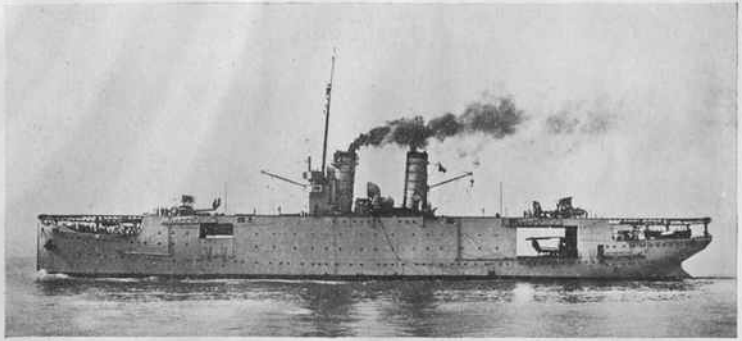
5 *Electric Boat Co.* design: ***H1, H2*** (1916), ***H4, H6, H8*** (1917), by Canadian Vickers Co., Montreal. Displacement: 336 tons *on surface* 434 tons *when submerged*. Dimensions: 150½ × 15½ × 12½ feet. 4—18 inch bow tubes. Machinery: 2 Nelseco Diesel engines *on surface*; 2 Electric Dynamic Co. motors *when submerged*. H.P. 480 = 13 kts. *on surface*, H.P. 620 = 11 kts. *when submerged*. Radius: 3,000 miles at 9 kts *on surface*. 130 miles at 2 kts. *when submerged*. Complement, 22. Oil: 18 tons. *H5* War loss. *H3*, *H7* scrapped.

2 "X" Class (*Minelayers*).

X 3. (Gun since removed). 1928 *Photo, Pucci.*

2 *Bernardis* type: ***X2, X3*** (Ansaldo, Sestri Ponente, 1916). Displacement: 389 tons *on surface*; 453 tons *submerged*. Dimensions: 140 × 18 × 13 feet. 1 M.G. Torpedo tubes: 2—18 inch. Carry 18 mines in 9 discharge chutes. Machinery: 2 Sulzer Diesels *on surface*; 2 Ansaldo electric *submerged*. 660 H.P. = 10 kts. *on surface*; 320 H.P. = 6 kts. *when submerged*. Carry 18 tons of fuel. Radius: 1,360 miles at 6·5 kts. *on surface*; 96 miles at 4 kts. *when submerged*.

Seaplane Carrier. (*Nave Appoggio Aerei.*)

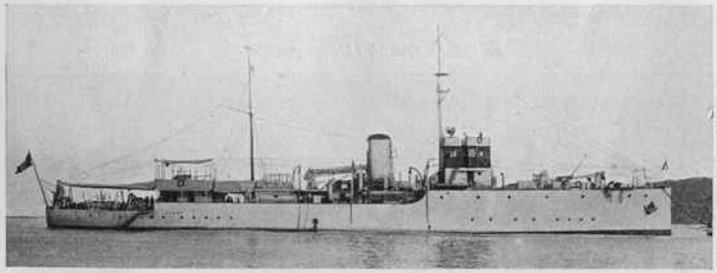


G. MIRAGLIA. 1939, *courtesy Dott. Ing. L. Accorsi.*

GIUSEPPE MIRAGLIA (ex-*Citta di Messina*, 20th December, 1923). Displacement: 4,880 tons. Dimensions: 377×49×17 feet. Guns: **4**—4 inch, AA., **4**—M.G. Parsons geared turbines. 8 Yarrow boilers. I.H.P.: 12,000 = 21 kts. Oil Fuel: 440 tons. Complement: 180. Reconstructed at Spezia D.Y., 1924–27. Carries 4 large and 16 smaller planes, with usual facilities for repairs and renewals and 2 catapults (forward and aft) for launching aircraft. Hein mat included in equipment.

Minelayers. (*Navi Posamine.*)

Note.—Cruisers *Bari*, *Taranto*; Surveying Vessel *Cariddi*, certain Transports and Water Carriers, all Destroyers and 8 Submarines are fitted for minelaying.

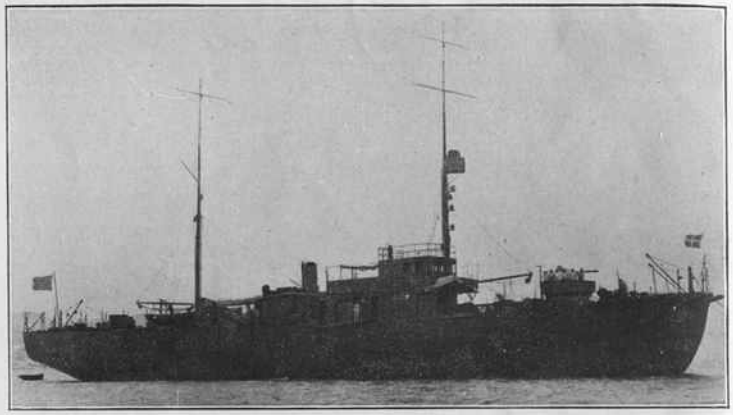


LEGNANO. 1934.

4 *Ostia* type: **AZIO** (May 4th, 1927), **LEGNANO** (May, 1926), **LEPANTO** (May 22nd, 1927), **OSTIA** (1925). All ordered 1924, the first three from Cant. Nav. Riuniti, Ancona, the fourth ship from Cant. Nav. Triestino, Monfalcone. Displacement: 615 tons (*full load*, 850 tons). Dimensions: 204 × 28½ × 8½ feet. H.P.: 1,500 = 15 kts. Oil fuel in first 3, coal in *Ostia*. Guns: 2—4 inch, 35 cal., 1—3 inch AA., 2 M.G. First three have an effective radius of 3,500 miles. All fitted for sweeping if required. 80 mines carried.

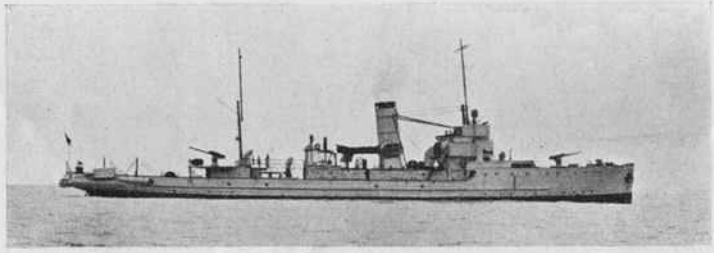
Note.—2 more ships of this class (*Dardanelli* and *Milazzo*) were sold to Venezuela in 1938.

Minelayers—*continued.*



BUCCARI. 1928 *Photo, Pucci.*

4 *Fasana* type: **BUCCARI** (1926), **DURAZZO** (1st April, 1926), **FASANA** (1924), **PELAGOSA** (1926). All built at Castellammare. 531 tons. Dimensions: 192 (*p.p.*) × 32 × 5·7 feet. Engines: 2 sets Fiat Diesels, together 700 B.H.P. = 10 kts. Guns: 1—3 inch AA. Carry 54 mines.



CROTONE. *Added* 1940.

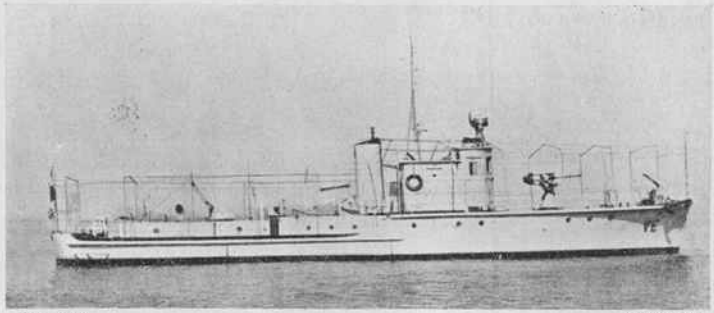
CROTONE (ex-*Abastro*, ex-German *M* 120), **VIESTI** (ex-*Meteo*, ex-German *M* 119.) Built at Neptun Yard, Rostock, 1918, and taken over by Italy in 1919. Displacement: 359 tons. Dimensions: 182 (*w.l.*), 192 (*o.a.*) × 23½ × 7 feet. Guns: 2—4 inch. Machinery: Triple expansion. 2 shafts. I.H.P. 1600 = 14 kts. 2 water-tube boilers. Coal: 125 tons.

Minelayers—*continued.*

Photo wanted.

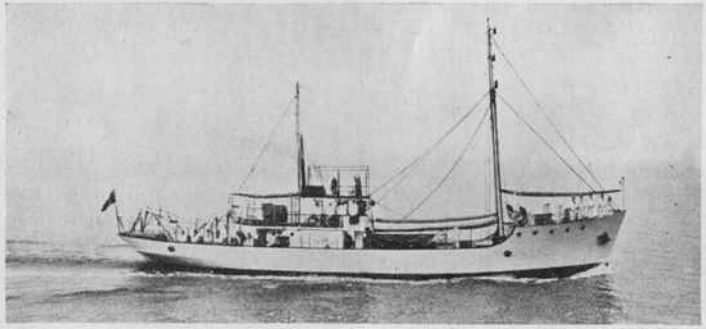
ALBONA (1919), **LAURANA** (1920), **ROVIGNO** (1919), (ex-Austrian Minesweepers *M.T.* 130—132). Built at Ganz-Danubius Yard. 113 tons. Guns: 1—3 inch. Machinery: Triple expansion. H.P.: 280 = 11 kts. 1 Yarrow oil-fired boiler.

Mine Sweepers (*Dragamine*)



VIGILANTE. *Added* 1940.

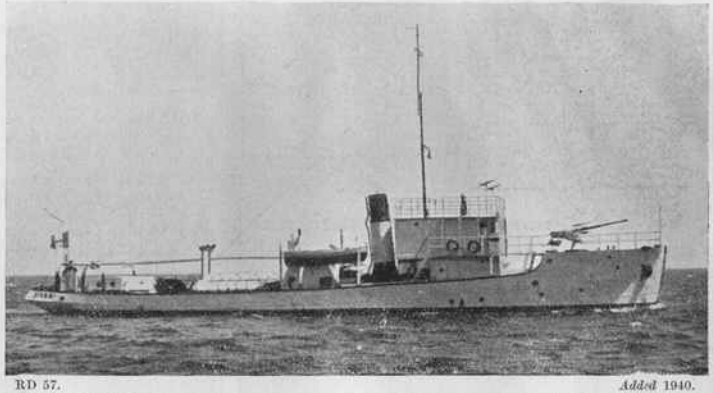
VEDETTA, VIGILANTE (Adriatico, 1937). Displacement: 70 tons. Dimensions: 85½ × 14 × 4¼ feet. Guns: 1—3 inch. Machinery: 2 Diesel motors. B.H.P.: 400 = 12·3 kts



Added 1940.

R.D. 1. (C.N.R., Ancona, 1938). 188 tons. Dimensions: 109½ × 21½ × 7½ feet. Guns: 1—3 inch. Diesel engine. 1 shaft. H.P.: 450 = 10 kts.

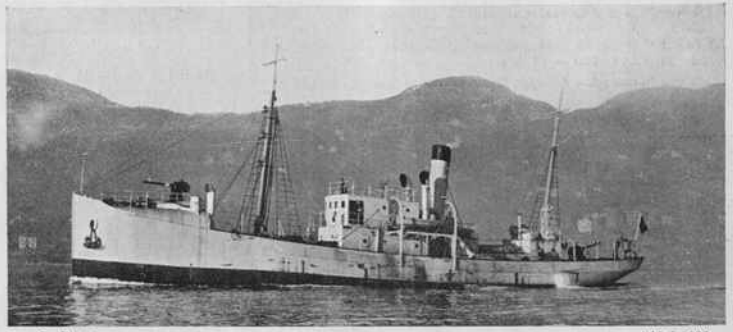
Mine Sweepers—*continued.*



RD 57. *Added* 1940.

38 vessels of 149–172 tons, bearing various numbers, RD 4 to 57, are also fitted for mine-sweeping. Majority are H.P. 750 = 14 kts. All armed with 1—3 inch AA.

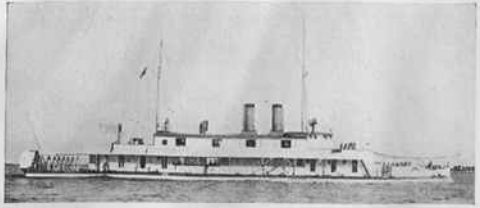
Gunboats (*Cannoniere*).



G. BERTA *Added* 1936.

GIOVANNI BERTA (ex-*Triglia*), **GIUSEPPE BIGLIERI** (ex-*Dentice*), **MARIO SONZINI** (ex-*Acciuga*), **PELLEGRINO MATTEUCCI** (ex-*Merluzzo*). All built 1924, the first by Schiffbau Ges. Unterweser, the other 3 by Deutsche Werft. *Standard* displacement: 620 tons. Dimensions: 138¾ × 24½ × 12½ feet. Guns: 2—3 inch, except *G. Berta*, which now has 1—3 inch, 1 M.G. Machinery: Triple expansion. 1 shaft. H.P.: 450 = 9 kts. (*P. Matteucci* is officially rated as a transport.)

Gunboats—*(continued)*



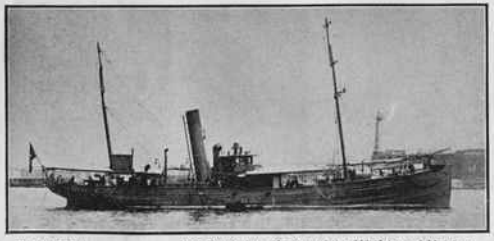
1933 *Photo, Capt. Dante Solimbergo, R.I.C.G.N.*

ERMANNO CARLOTTO (Shanghai Dock & Engineering Co. 1921). Shallow-draught river gunboat. 180 tons. Dimensions: 160 × 24½ × 2¾ feet. Guns: 2—3 inch AA., 6 M.G. Designed H.P.: 1,100 = 14 kts. 2 Yarrow boilers. Complement: 60. Oil: 56 tons. Twin screws in tunnels.

Photo wanted.

ILLIRIA (ex-*Cité d'Athenes*, ex-*Gardon*), (Havre, 1918). *Standard* displacement: 654 tons. Dimensions: 147½ (*pp.*), 159 (*o.a.*) × 25 × 13 feet. Guns: 2—3 inch. Machinery: Diesel. B.H.P.: 600 = 11 kts.

Note.—Illiria was formerly the Albanian Royal yacht.



PALMAIOLA. *1925 Photo, by courtesy of the Ministry of Marine.*

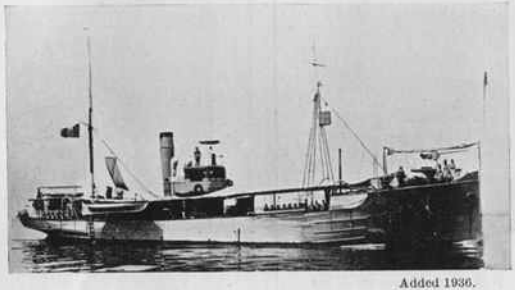
PALMAIOLA (ex-*Mary*) (Hull, 1902). 472 tons. Dimensions: 133 × 19½ × 12 feet. H.P.: 380 = 8·5 kts. Guns: 1—3 inch AA. Complement: 80. (Purchased, 1916).

Gunboats—*continued.*

Photo wanted.

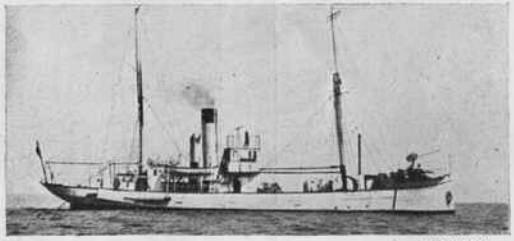
VALOROSO (ex-*Bayard*) (Glasgow, 1908). Purchased in 1915. 338 tons. Guns: 1—3 inch AA., 1 M.G. H.P. 477 = 10 kts.

The following were all acquired from Japan, 1917. Some carry minesweeping gear.



Added 1936.

ALULA (ex-*G* 23, ex-*Sekijyo Maru*, Osaka, 1912). 308 tons. Dimensions: 131½ × 21 × 9¾ feet. Guns: 1—3 inch AA. H.P.: 500 = 13 kts. Complement: 27.

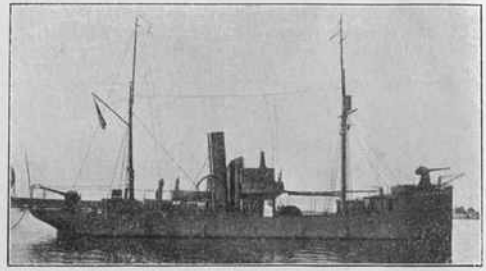


Added 1940.

RIMINI (ex-*G* 16, ex-*Fuku Maru*). (Osaka, 1912). 319 tons. Guns: 1—3 inch AA. H.P.: 350 = 9.5 kts. Complement: 24.

Gunboats—*continued.*

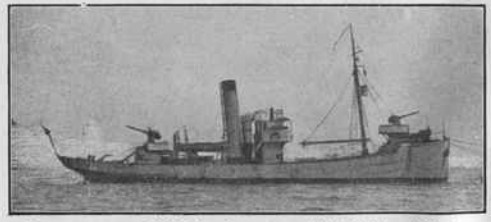
PORTO CORSINI (ex-*G* 15, ex-*Fumi Maru*). (Osaka, 1912). 280 tons. Guns: 2—3 inch AA. H.P.: 300 = 9 kts. Complement: 24.



GALLIPOLI. *1929 Photo, by courtesy of Ministry of Marine.*

GALLIPOLI (ex-*G* 31, ex-*Hakata Maru No.* 8). (Osaka, 1911). 310 tons. Guns: 2—3 inch AA. H.P.: 350 = 10 kts. Complement: 24.

OTRANTO (ex-*G* 36, ex-*Sumiye Maru*, ex-*Mariveles*). (Middlesbrough, 1911). 290 tons. Guns: 2—3 inch AA. H.P. 550 = 9·5 kts. Complement: 24.



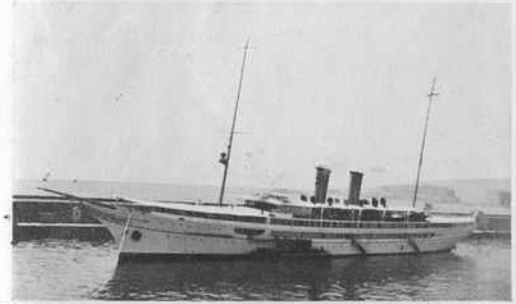
CIRENE. *1925 Photo, by courtesy of the Ministry of Marine.*

CIRENE (ex-*G* 13, ex-*Hoyo Maru*). (Kobe, 1912). 383 tons. Guns: 2—3 inch AA., 1 M.G. H.P.: 300 = 9 kts.

Auxiliary Patrol Vessels, etc.

116 motor fishing vessels were acquired by the Italian Navy in January 1940. It was stated that 31 were being rated as *Avvisi Scorta* and 85 as *Posamine*.

Royal Yacht.

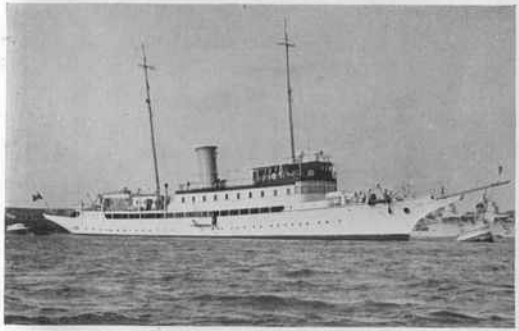


SAVOIA. 1937, *W. H. Davis, Esq.*

SAVOIA (ex-*Citta di Palermo*, 1st September, 1923). 5280 tons. Dimensions: 390 (*w.l.*) × 49 × 17 feet. Guns: 4—3 inch AA. 2 sets Parsons geared turbines. 8 Yarrow boilers, oil-fired. I.H.P.: 12,000 = 22 kts.

Note.—Built at Spezia and reconstructed by Cant. Nav. Riuniti, Palermo, as a yacht.

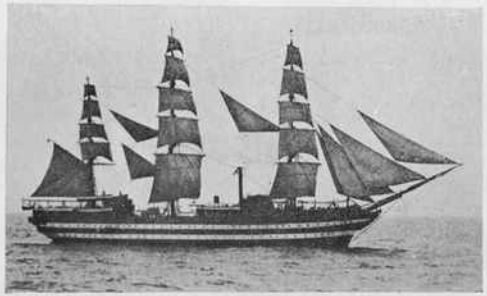
Admiralty Yacht (Classed as *Cannoniera*).



1936

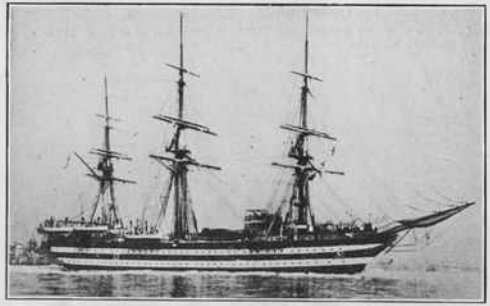
AURORA (ex-*Marechiaro*, ex-Austrian *Taurus*, ex-*Nirvana*). (D. & W. Henderson & Co., Glasgow, 1904). Reconstructed 1928. Displacement: 935 tons. Dimensions: 261 (*o.a.*) × 30 × 14 feet (*mean*). Guns: 2—57 mm. Machinery: Parsons geared turbines. 2 shafts. 2 Thornycroft boilers. H.P.: 3,255 = 14·7 kts. Oil: 117 tons.

Training Ships (*Navi Scuola*).



1932 *Photo, Capt. Ferratti.*

AMERIGO VESPUCCI (March 22, 1930). Built at Castellammare. Displacement: 3,543 tons. Dimensions: 229·6 × 51 × 22 feet. Guns: 4—3 inch AA., 2 M.G. Machinery: Two Fiat Diesels, with electric drive to 2 Marelli motors. 1 shaft. H.P.: 1,900 = 10·5 kts. Sail area: 22,600 sq. feet. Complement: 400 + 150 midshipmen.



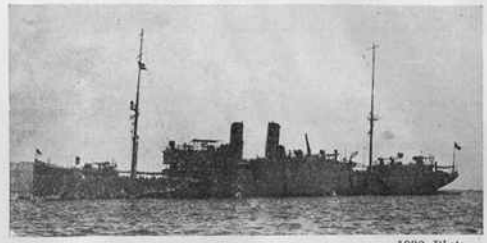
C. COLOMBO. 1928 *Photo, Capitan M. Mille.*

CRISTOFORO COLOMBO (April 4, 1928). Built at Castellammare. Displacement: 2,787 tons. Dimensions: 218 (*p.p.*) × 48½ × 20½ feet. Guns: 4—3 inch AA., 2 M.G. Machinery: 2 Tosi Diesels with electric drive to 2 Marelli motors. H.P.: 1,600 = 10 kts. 2 shafts. Fuel: 103 tons. Sail area: 18,700 sq. feet. Radius: 6,000 miles at 8 kts.

Notes.—*C. Colombo* usually depends on sail power, machinery being treated as auxiliary. Hull, masts and yards, are all of steel. Loud speakers and echo sounding gear form part of her equipment. About 140 midshipmen and cadets (or an equal number of boys) are usually carried.

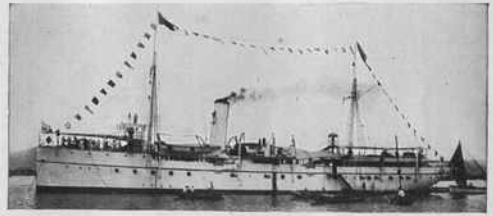
Submarine Depôt Ships.

(*Navi per appoggio sommergibili.*)



1932 *Photo.*

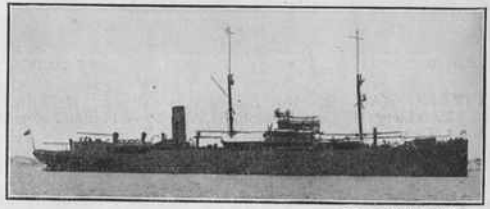
ALESSANDRO VOLTA (ex-*Caprera*, 1921).
ANTONIO PACINOTTI (ex-*Citta di Sassari*, 1922).
Both reconstructed at Castellammare D.Y., 1924–25. 2,727 tons. Dimensions: 288¾ × 36 × 15 feet. Guns: 4—3 inch AA. Zoelly geared turbines. H.P.: 7,500 = 19 kts. 2 cylindrical oil-fired boilers in *Pacinotti*, 4 in *Volta*.



(Now has black-topped funnel). 1920 *Photo, A. Boo, Cheefu.*

SEBASTIANO CABOTO (Palermo, 1912). Displacement: 778 tons. Complement, 104. Dimensions: 196·8 × 31·8 × 9 feet. Guns: 6—3 inch. 4 M.G. H.P., 1200 = 13 kts. (formerly classed as a Gunboat).

Repair Ship (*Nave Officina*)

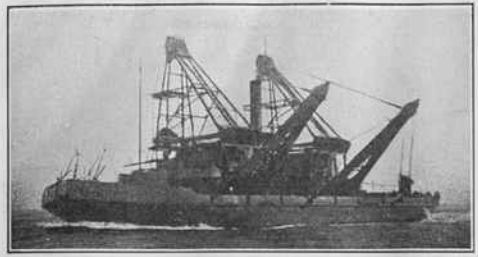


Official 1928 *Photo.*

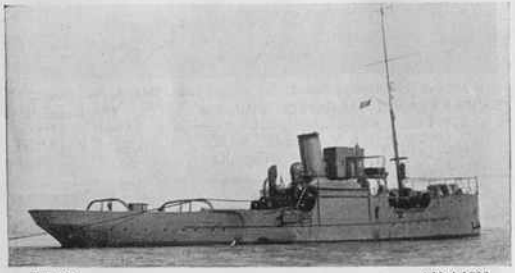
QUARNARO (Scoglio Ulivi Yard, Pola, July 30, 1924). 7,185 tons. Dimensions: 374 × 48½ × 20 feet. Guns: 3—4 inch AA. Machinery: Triple expansion. 1 shaft. H.P. 2,300 = 11·5 kts. 3 cylindrical boilers, oil-fired.

Submarine Salvage Vessels.

(Navi per salvataggio Sommergibili.)



ANTEO (Smulders, Schiedam, 1912). Special Salvage Ship for Submarines. 1,252 tons. Dimensions: 164 × 78½ × 6½ feet. I.H.P., 720 = 8 kts. 2 screws. 2 cyl. boilers. 2 cranes, each lifting 200 tons.



TITANO. *Added* 1936.

TITANO (Ansaldo, 1913). 828 tons. Guns: 1—3 inch. Machinery: Triple expansion. H.P. 1,850 = 14 kts. 2 screws. 2 Thornycroft boilers. Coal: 160 tons.

Salvage Vessels *(Navi Salvataggio)*

Added 1936.

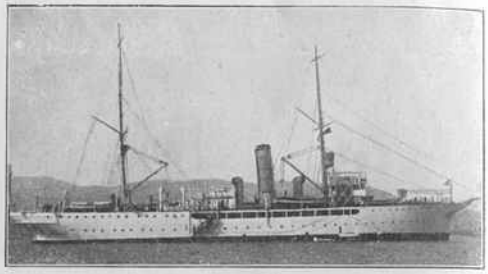
TESEO (ex-*Semper Paratus*, ex-H.M.S. *Buttercup*). (Barclay, Curle & Co., Glasgow, 1915.) 1,250 tons. Dimensions: 265 × 33½ × 11 feet. Guns: 2—3 inch. Machinery: Triple expansion. 1 shaft. H.P. 2,300 = 16 kts. 2 cylindrical boilers. Coal: 250 tons.

Note.—This ship was purchased in 1932. Former vessel of same name was lost on Dec. 13, 1931.

CICLOPE. 1930 *Photo, Capitan M. Mille.*

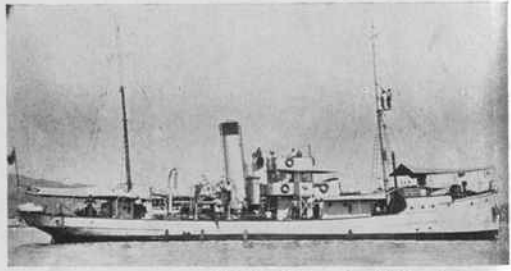
CICLOPE (Pattison, Naples, 1903). 1050 tons. Guns: 1—3 inch. H.P.: 1,900 = 13·5 kts. 2 shafts. 2 Thornycroft boilers.

Surveying Vessels *(Navi Idrografiche).*



AM. MAGNAGHI. 1929 *Photo, Capitan M. Mille, Sp.N.*

AMMIRAGLIO MAGNAGHI (Odero, Aug., 1914). 1,506 tons. Complement: 137. Dimensions: 229½ (*pp.*), 273 (*o.a.*) × 37½ × 12½ feet. Guns: 4—3 inch. I.H.P.: 950 = 10·5 kts. Machinery: 2 sets vertical triple expansion. Boilers: 4 cylindrical. (Was originally laid down as a Passenger Steamer).



1938, *added* 1939, *courtesy Dott. Ing. L.Accorsi.*

CARIDDI (ex-*G* 21, ex-*Nishiso Maru No.* 1). (Kawasaki Co., Kobe, 1911; purchased 1917.) 330 tons. Guns: 1—3 inch. H.P. 450 = 10 kts. Is fitted for minelaying.

Lighthouse Tenders

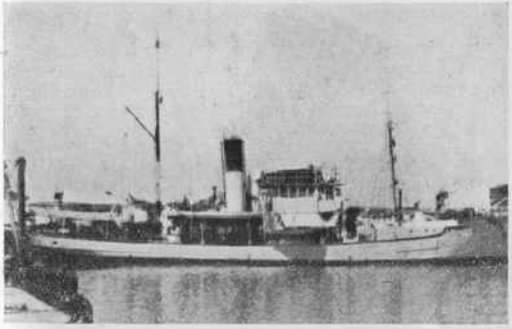
(*Naviglio addetto al servizio fari.*)

Mostly ex-Trawlers, purchased during 1917.

RICCARDO GRAZIOLI LANTE (ex-*Abisso*, ex-*Falco*, ex-*Petrel*) (J. Duthie Torry Co., Aberdeen, 1912). Displacement: 295 tons. Dimensions: 139¾ × 22 × 9 feet. Guns: 2—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 550 = 12 kts. 1 cyl. boiler.

1928, *Pucci.*

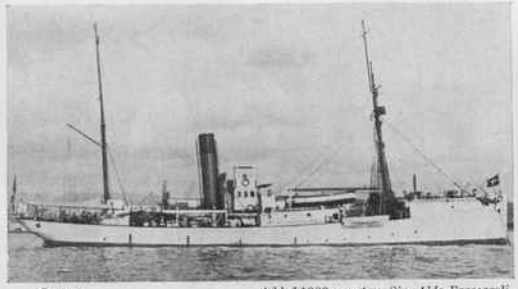
DANTE DE LUTTI (ex-*G* 34, ex-*Tomiye Maru*). (Mitubisi, Nagasaki, 1911). Displacement: 266 tons. Dimensions: 118 × 21 × 8½ feet. Guns: 2—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 400 = 12 kts. 1 cyl. boiler.



MARIO BIANCO. *Added* 1940, *Sig. Aldo Fraccaroli.*

MARIO BIANCO (ex-*G* 24, ex-*Fukuhaku Maru No.* 6, ex-*Yoshida Maru No.*1). (Kawasaki, Kobe, 1911). Displacement: 258 tons. Dimensions: 109 × 23 × 8 feet. Guns: 2—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 340 = 11·5 kts. 1 cyl. boiler.

Lighthouse Tenders—*continued*



SCILLA. *Added* 1939, *courtesy Sig. Aldo Fraccaroli.*

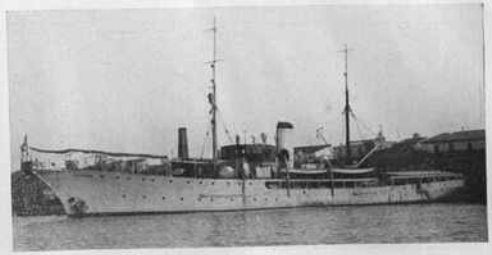
SCILLA (ex-*Panaria*, ex-*Fantasma*, ex-*Lord Charles Beresford*). (A. Hall & Co., Aberdeen, 1904; purchased 1916). Displacement: 350 tons. Guns: 1—3 inch. Machinery: Triple expansion. 1 shaft. H.P.: 450 = 9 kts.

LIDO (Castellammare, 1907). Displacement: 226 tons. Dimensions: 116 × 21½ × 7 feet. Guns: 1—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 550 = 12 kts. Babcock boiler.

Added 1940.

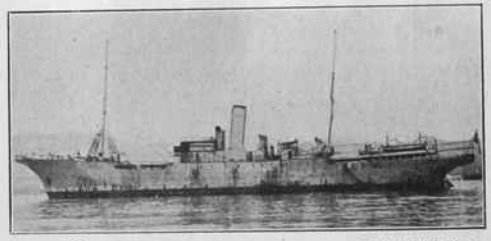
LEVANZO (ex-*Tiburon*, ex-*Nankeen*), (Scott & Sons, Bowling, 1906). Displacement: 226 tons. Dimensions: 122 × 21½ × 7½ feet. Guns: 2—3 inch. Machinery: Triple expansion. 1 shaft. I.H.P.: 500 = 11 kts. 1 cyl. boiler.

Research Ships (*Navi Posacavi*).



1932 *Photo, Official.*

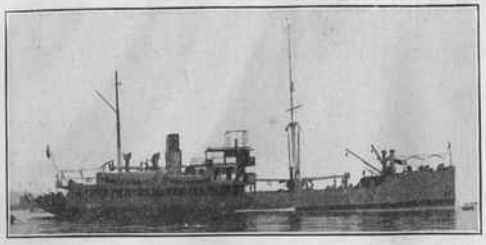
GIASONE (Cantiere Breda, Venice, 1929). Displacement: 1,191 tons. Dimensions: 210 (*pp.*), 251 (*o.a.*) × 33¾ × 13 feet. Guns: 2—3 inch AA. Machinery: Triple expansion. 2 shafts. Boilers: 2 water tube. H.P.: 2,500 = 15 kts.



CITTA DI MILANO. 1929 *Official Photo.*

CITTA DI MILANO (ex-*Grossherzog von Oldenburg*). (Schichau, Elbing, 1905). 5,295 tons. Dimensions: 332¾ (*o.a.*), 305 (*pp.*) × 41½ × 22 feet. Guns: 2—37 mm. AA. Triple expansion engines. 3 cylindrical boilers. H.P.: 1,500 = 11 kts. (Originally intended for cable laying.)

Transports (*Navi Trasporto*).

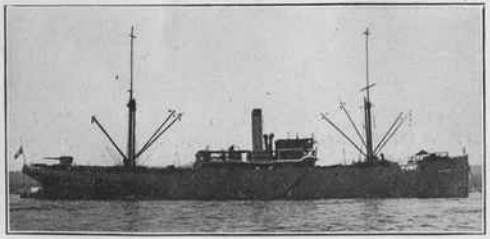


BUFFOLUTO. 1928 *Photo, Pucci.*

PANIGAGLIA (10th July, 1923), **BUFFOLUTO** (1924), **VALLELUNGA** (1924). All built by Ansaldo San Giorgio, Spezia. 915 tons. Dimensions: 184½ (*o.a.*), 172¼ (*p.p.*) × 29½ × 11 feet. Guns: 2—3·9 inch, 47 cal., 1 M.G. Triple expansion engines. 2 Thornycroft boilers. H.P.: 1,400 = 11 kts. Radius at this speed, 960 miles. Classed as "*Navi Trasporto Munizioni.*" Fitted for minelaying.

Photo wanted.

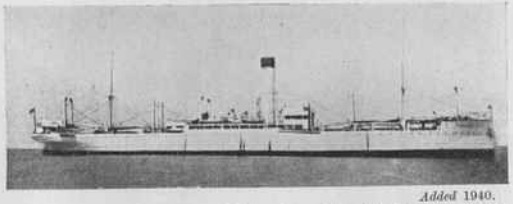
TRIPOLI (Odero, 1922). 2,460 tons. Dimensions: 205¾ (*o.a.*) × 31¾ × 15 feet. Guns: None at present. Triple expansion engines. H.P.: 600 = 8·5 kts.



CHERSO. (Recently employed in Surveying Service) 1928 *Photo, Pucci.*

CHERSO (ex-*Amalfi*) **LUSSIN** (ex-*Marsala*). (A. G. Neptun, Rostock, 1912). Displacement: 3,988 tons. Dimensions: 300 × 41 × 17½ feet H.P.: 1,100 = 10·5 kts. Guns: 4—4·7 inch, 2—3 inch AA. Classed as "*Navi Trasporto Materiale.*" Cargo: 3,000 tons.

Transports—*continued*



Added 1940.

ASMARA (ex-*Nasina*, ex-*Meissonier*). (Russell, Glasgow, 1915). Purchased 1935. Displacement: 6,850 tons. Dimensions: 454¾ × 55¾ × 23¾ feet. Machinery: Quadruple expansion. 2 shafts. H.P. 4,300 = 12·5 kts. 4 cyl. boilers. Classed as *Nave Frigorifere.*

Photo Wanted

ENRICHETTA (ex-*Presto*, ex-*Alberto Fassini*, ex-*Kossuth Ferencz*). (J. L. Thompson & Co., Sunderland, 1907). Displacement: 8,360 tons. Dimensions: 399 × 50 × 22 feet. Machinery: Triple expansion. H.P. 1,500 = 9·5 kts. 2 cyl. boilers.

Note.—There are a number of smaller transports, of the coasting type, not worth inclusion here.

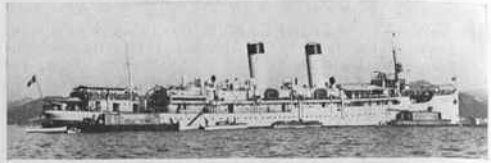
Target Ship. (*Nave Bersaglio*).

1936, *Official.*

SAN MARCO (Castellammare, Dec., 1908). Ex-armoured cruiser converted into a wireless controlled target ship. Displacement: 8,600 tons. Dimensions: 430 (*p.p.*), 462¼ (*o.a.*) × 69 × 22¾ feet. Armament removed. Machinery: Parsons turbines. 2 shafts. S.H.P. 13,000 = 18 kts. 8 Blechynden boilers.

Note.—Old Torpedo boat *Audace* serves as control vessel.

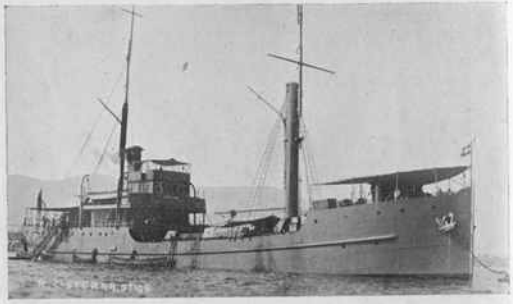
Distilling Ship (*Nave Distillatrice*).



1934 *Photo.*

CITTA DI SIRACUSA (Odero, 1910). 3,593 tons. Dimensions: 363½ (*o.a.*) × 42½ × 16½ feet. Guns: 2—3 inch AA. Machinery: Triple expansion. Boilers: 10 cylindrical. H.P.: 12,000 = 20 kts. Is fitted with Ansaldo distilling plant to produce 190 tons of fresh water daily.

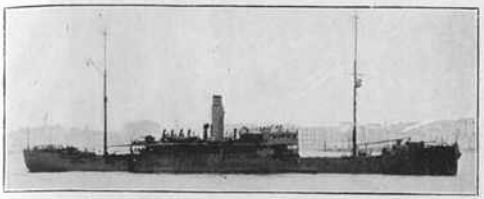
Petrol Carrier (*Navi Cisterna per Benzina*).



STIGE *Added* 1936.

STIGE (Spezia Dockyard, 1924). 1,343 tons. Dimensions: 173½ × 30½ × 13 feet. Guns: 1—4·7 inch, 1—3 inch. Tosi Diesels. H.P.: 650 = 8 kts.

Oilers (*Navi Cisterna per Nafta*).

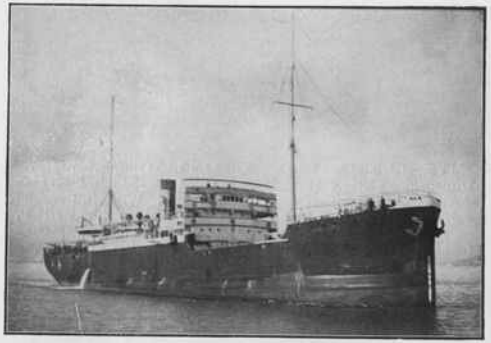


1928 *Photo, by courtesy of Ministry of Marine.*

TARVISIO (Castellammare, April 11, 1927). 10,915 tons. Dimensions: 372½ × 59 × 22½ feet. Guns: 4—4·7 inch, 2—3 inch AA. Parsons turbines. 3 oil-fired cylindrical boilers. H.P.: 2,600 = 10 kts. Cargo: 8,000 tons. Protective arrangements as *Brennero* in a later column.

URANO. *Photo added* 1927.

URANO (Deutsche Werke, Kiel, 1922). Built under War Reparations account. 10,550 tons. Dimensions: 414½ × 54 × 23¼ feet. Guns: 2—4·7 inch, 2—3 inch AA., 2 M.G. Diesels. 2 shafts. H.P.: 2,000 = 11 kts. Cargo: 8,000 tons.

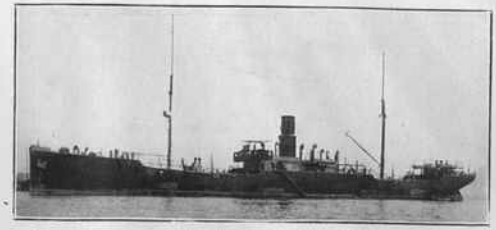


BRENNERO. 1925 *Photo, by courtesy of Ministry of Marine.*

BRENNERO (Societa Esercizi Bacini, Riva Trigoso, 1921). Displacement: 9,790 tons (7,400 tons *d.w.c.*). Dimensions: 343⅛ × 59 × 24⅓ feet. Guns: 4—4·7 inch, 45 cal., 2—3 inch AA. Magazines are well protected. I.H.P.: 2,600 = 10·9 kts. (for trials), 9·5 (in service). Triple expansion engines. 1 screw. 2 Yarrow oil-fired boilers. Protection: "Pugliese" type bulges, with central "shock-absorbing" cylinders.

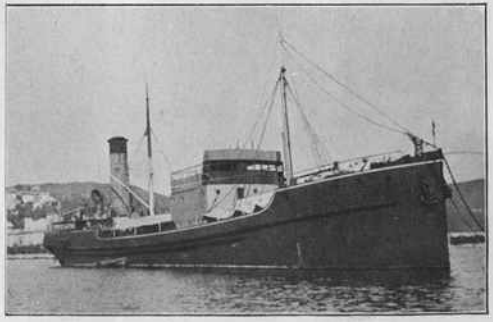
PROMETEO. 1936.

PROMETEO (ex-*Ostia*). (Stab. Tecnico Triestino, 1920). 1,080 tons. Dimensions: 179½ × 26¼ × 11 feet. Guns: 2—3 inch AA. Triple expansion engines. 1 Yarrow oil-fired boiler. H.P.: 600 = 10 kts.



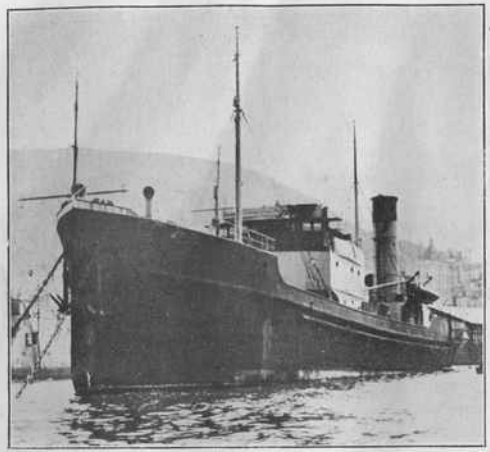
NETTUNO. 1928 *Photo, by courtesy of Ministry of Marine.*

GIOVE, NETTUNO (Cant. Nav. Riuniti, Palermo, 1916). 9,540 tons. Dimensions: 416½ × 51½ × 24 feet. Guns: *Giove*, 2—4·7 inch, 2—3 inch AA.: *Nettuno*, 3—4·7 inch, 2—3 inch AA. Triple expansion engines. 4 Yarrow oil-fired boilers. H.P.: 4,200 = 14 kts. Cargo: 6,000 tons oil fuel.



NIOBE. 1929 *Photo, by courtesy of Ministry of Marine.*

NIOBE (ex-German *Sylt*, Reiherstieg Yard, Hamburg, 1916). 3,160 tons. Dimensions: 263½ × 37½ × 15 feet. Triple expansion engines. 2 Oil-fired cylindrical boilers. H.P.: 1,000 = 11 kts. Guns: 3—3 inch AA. Cargo capacity: 2,000 tons.

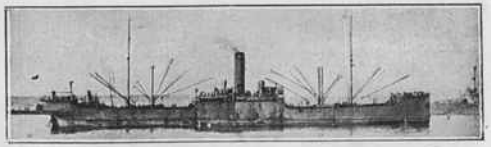


CERERE. 1929 *Photo, by courtesy of Ministry of Marine.*

CERERE (ex-*Baltrum*, Kiel, 1915). 2,530 tons. Dimensions: 246½ × 34½ × 14½ feet. Guns: 2—3 inch AA. Triple expansion engines. 2 coal-fired cylindrical boilers. H.P.: 800 = 10 kts. Capacity: 1,500 tons.

COCITO 1939, *courtesy Dott. Ing. L. Accorsi.*

COCITO, LETE (Riva Trigoso, 1914–15). 1,165 tons. Dimensions: 168½ × 30½ × 11 feet. Guns: 3—3 inch AA. Tosi Diesels. H.P. 750 = 10 kts. Cargo: 760 tons.



BRONTE (Orlando, 1904). 8,238 tons. Complement, 79. Dimensions: 391 × 47 × 23 feet. Guns: 2—3 inch, 2—3 inch AA. Triple expansion engines. 2 screws. With full cargo: 3,700 I.H.P. = 11·5 kts.; with reduced cargo 4,300 I.H.P. = 14·5 kts. 2 cylindrical boilers. Carries 6,000 tons. Own fuel: 550 tons. *Sterope* (sister ship), lost during War.

1936, *Pucci.*

MARTE (ex-Austrian *Vesta*) (Armstrong, 1892). 4,695 tons. Dimensions: 301 × 37½ × 20 feet. Guns: 2—3 inch AA. Triple expansion engines. 2 coal-fired cylindrical boilers. I.H.P.: 1,200 = 10 kts.

Water Carriers (*Navi Cisterna per Acqua*).

ISONZO. 1938, *courtesy Sig. F. Cianciafara.*

ISONZO (June 9, 1937), **PO, VOLTURNO** (1936). *Po* built by C. N. Riuniti, Ancona, other 2 by Tirreno. Displacement: 3,336 tons. Dimensions: 265¾ × 38¾ × 16¼ feet. Guns: 2—4·7 inch. 4 M.G. AA. Machinery: Triple expansion. 1 shaft. H.P.: 1,700 = 11·5 kts. Oil-fired watertube boilers. Capacity: 2,000 tons.

Photo Wanted

SCRIVIA, TIRSO (Tirreno, 1937). 1,086 tons. Dimensions: 174 × 33 × 11½ feet. 4 M.G. (Fitted for Minelaying.) Fiat Diesels. H.P.: 600 = 9·5 kts.

GARIGLIANO 1937.

GARIGLIANO (Tirreno, 1934), **SESIA** (Adriatico, 1933). 1,050 tons. Dimensions: 213¼ × 33 × 11½ feet. 4 M.G. (Fitted for minelaying). Fiat Diesels. 2 shafts. H.P. 600 = 9·5 kts.

METAURO, SILE (Quarnaro, 1933), **SEBETO** Venice, 1933), **GARDA, VERBANO** (Palermo, 1933). Displacement: 592 tons. Dimensions: 119 × 26½ × 10½ feet. Tosi Diesels. H.P.: 400 = 9 kts.

ARNO, BRENTA (Odero-Terni, 1929). 635 tons. Dimensions: 138¾ × 26 × 10 feet. Fiat Diesels. H.P.: 350 = 9 kts.

BORMIDA, MINCIO (Venice, 1929). 645 tons. Dimensions: 138½ × 26½ × 10 feet. Tosi Diesels. H.P.: 350 = 9 kts.

1930 *Photo, Capitan M. Mille.*

ADIGE (Castellammare, 1928). 780 tons. Dimensions: 154 × 31½ × 7½ feet. 4 M.G. (Fitted for minelaying.) M.A.N. Diesels. 2 shafts. H.P.: 280 = 8 kts.

1939, *courtesy Sig. Aldo Fraccaroli.*

TICINO (Vulkan, Hamburg, 1924). 2,588 tons. Dimensions: 244 × 36 × 15½ feet. Guns: 2—3 inch. M.A.N. Diesels. 1 shaft. H.P.: 620 = 9·5 kts.

DALMAZIA. 1929 *Official Photo.*

DALMAZIA (Fiume, 1922), **ISTRIA** (Fiume, 1923). Displacement: 2,900 tons. Dimensions: 260 × 32½ × 15½ feet. Guns: 1—4·7 inch, 1—3 inch AA. Triple expansion engines. 2 shafts. 2 Thornycroft oil-fired boilers. H.P.: 1,450 = 10 kts. Cargo: 1,800 tons. Both built at Quarnaro Yard.

PAGANO

PAGANO, VERDE (Spezia Dockyard, 1921). 1,432 tons. Dimensions: 173¾ × 30½ × 14 feet. Fiat Diesel engines. B.H.P.: 400 = 7·5 kts. Guns: 1—4·7 inch, 1—3 inch AA. Capacity: 950 tons.

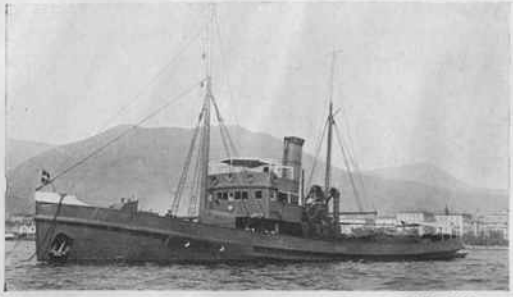
1936

FLEGETONTE (Riva Trigoso, 1915). Sister ship to Oilers *Cocito* and *Lete*. 1,162 tons. Guns: 3—3 inch AA. Tosi Diesels. H.P.: 700 = 9 kts. Capacity: 750 tons.

FRIGIDO (ex-*Fukuju Maru*). (Osaka, 1912.) (Purchased, 1916.) 398 tons. Dimensions: 116½ × 21½ × 10 feet. 2 M.G. Triple expansion engines. 1 cylindrical boiler. H.P. 221 = 9 kts.

Note.—There are a number of smaller water carriers not worth listing here.

Tugs. (*Rimorchiatori*)



Added, 1936-

POLIFEMO (ex-*Einigkeit*, 1916). Salvage Vessel and Tug. 1,035 tons. H.P.: 1,250 = 12 kts. Thornycroft boiler.

GAGLIARDO, ROBUSTO, TENACE, VIGOROSO (1939). 389 tons. H.P.: 1,000 = 12 kts.

RAPALLO, TAORMINA (1937). 276 tons. Guns: 1—3 inch. H.P.: 650 = 10 kts.

NEREO (1936). 340 tons. Guns: 1—3 inch. H.P.: 900 = 11 kts.

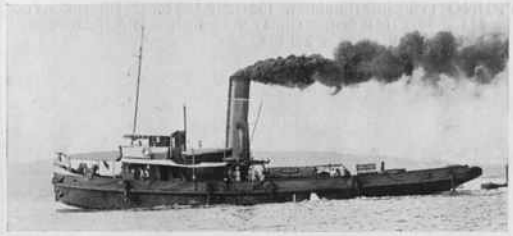
TINO 1936

SALVORE, TINO, PANTELLARIA, PORTO FERRAIO, PORTO TORRES, PORTO CONTE, PORTO ERCOLE, PORTO QUIETO, PORTO SDOBBA, PORTO FOSSONE, PORTO VENERE, PORTO BUSO, PORTO RECANATI, PORTO SALVO, PORTO PISANO, MISENO, PALINURO (1929–1937). 223 to 226 tons. Guns: 1—3 inch. H.P.: 600 = 11 kts.

Tugs—*continued.*

ATLANTE. 1936

ATLANTE (1928), **ERCOLE** (1928), **AUSONIA** (1920). 355 tons. Guns: 1—3 inch. H.P.: 900 = 11 kts.



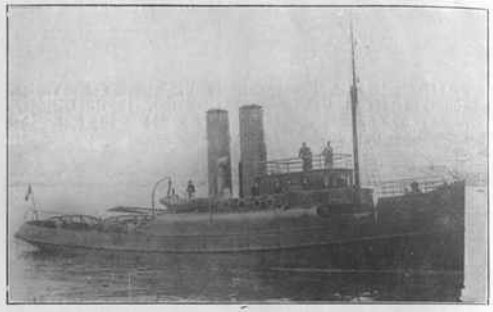
FAVIGNANA. 1936

FAVIGNANA (1918). 320 tons. Guns: 2—3 inch. H.P.: 560 = 10 kts.

1936

MONTECRISTO (Danzig, 1916). 340 tons. H.P.: 500 = 10 kts. Guns: 1—3 inch.

Tugs—*continued.*



L. F. MARSIGLI. 1929 *Official Photo.*

LUIGI FERDINANDO MARSIGLI (ex-*Tremiti*, 1916), **LUNI** (1914), **MARITTIMO** (1915), **EGADI** (1915). 337 tons. Guns: 1—3 inch. H.P.: 975 = 12 kts.

1936

LIPARI (1917). 250 tons. H.P.: 500 = 10 kts. Guns: 1—3 inch.

PORTO EMPEDOCLE (1914). 330 tons. Guns: 1—3 inch. H.P. 500 = 11 kts.

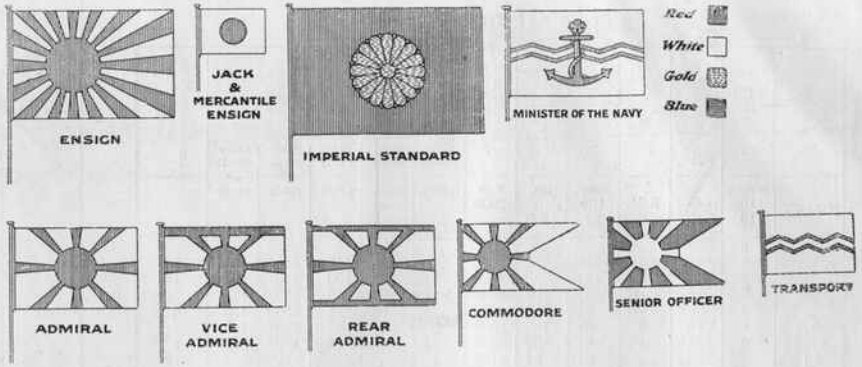
Note.—There are a great many small tugs not worth listing here.

JAPAN.

Minister of the Navy: Admiral Koshiro Oikawa.
Chief of Naval Staff: Admiral Prince Hiroyasu Fushimi, G.C.V.O.
Naval Attaché, London: Capt. T. Kondo.
Assistant Naval Attachés, London: Commander M. Yosii, Lieut.-Commander S. Asada.

Flags.

1 *Standard of H.I.M. the Empress.*—A forked flag with a gold chrysanthemum on a red ground (as sketch for Imperial Standard).
2 *Standard of H.I.H. the Crown Prince.*—As Imperial Standard, but the chrysanthemum is enclosed in a square white border set a little distance within edges of flag.
3 *Imperial Princes and Princesses.*—A square white flag, with red border run round edges of flag and gold chrysanthemum in centre.
4 *Duty Flag.*—As transport flag, but *white* stripes over *red* ground.
5 *Repair Ship Flag.*—As transport flag, but with red stripes along upper and lower edges of flag, instead of across centre.
6 *Pendant for Men of War.*—Usual narrow triangulated shape, with Rising Sun next to hoist, as in Commodore's broad pendant.



Navy Estimates.

(excluding Supplementary Credits).

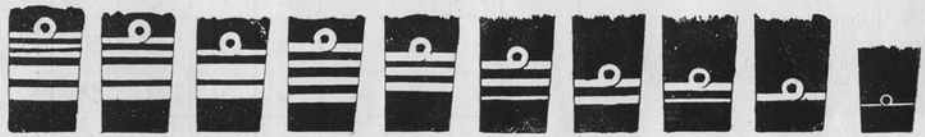
1938-39, Yen 680,383,351 | 1939-40, Yen 826,752,432 | 1940-41, Yen 1,029,075,517

Personnel: About 107,000, all ranks.

Mercantile Marine.

(From "Lloyd's Register," 1939 figures).
2,337 vessels of 5,629,845 gross tonnage.

INSIGNIA OF RANK—EXECUTIVE OFFICERS—SLEEVES.



Executive Branch:	Tai-sho.	Chu-sho.	Sho-sho.	Tai-sa.	Chu-sa.	Sho-sa.	Tai-i.	Chu-i.	Sho-i	Sho-i Ko-hosei.
Corresponding British:	*Admiral.*	*Vice-Ad.*	*Rear-Ad.*	*Captain.*	*Commander.*	*Lieut. Com.*	*Lieutenant.*	*Sub-Lieut.*	*Acting Sub-Lieut.*	*Midshipman.*

BAND between stripes. (BRANCHES, with but after Executive).

Violet	Kikwan (*Engineer*) (with executive rank and curl. Titles as above with the prefix Kikwan).
Red	Gun-i (*Surgeon*).
White	Shukei (*Paymaster*).
Brown	Zosen (*Constructor*).
"	Zoki (*Engineer-Constructor*). — with curl, as Executive.
Purple-Brown	Zohei (*Ordnance Constructor*).
Blue	Suiro (*Surveyor*).

The senior officer of any branch on board one of H.I.J.M. ships always carries the affix "*cho*." Thus: Ho-jitsu-cho (*Gunnery*), Sui-rai-cho (*Torpedo*), Ko-kai-cho (*Navigator*), Gun-i-cho (*Principal Medical Officer*), Shukei-cho (*Senior Paymaster*).

Undress is a military tunic (dark blue) with the sleeve insignia of rank in black braid only, with curl, and with collar insignia of rank and branch.

CAP.

The cap is the same as the British (but without gold embroidery in the senior ranks).

CAP BADGE.

Small anchor, surrounded by cherry leaves and blossom

NOMENCLATURE OF JAPANESE WARSHIPS.

The system of nomenclature recently in use (with occasional exceptions) is thus:—

Battleships: Named after Provinces and Mountains.
Aircraft Carriers: Named after Mountains, Dragons, and Birds.
Cruisers: Named after Rivers, Mountains, Straits and Channels.
Destroyers (First Class): Meteorological Names in poetic style.
Destroyers Second Class) Names after Trees, Flowers and Fruits.
Torpedo Boats: Named after Birds.
Minelayers: Named after Islands and Birds.

Colour of Ships: Dark grey usually. Since 1934 submarines of certain Flotillas have been painted black, presumably as an experiment.

Principal Naval Guns.

Notation.	Calibre.	Length in calibres.	Model.	Weight of Gun.	Weight of A.P. shot.	Maximum Initial Velocity.	Maximum penetration firing A.P. capped at K.C.		Danger space against average ship, at			Service rate of Fire. Rounds per minute.
							5000 yards.	3000 yards.	10,000 yards.	5000 yards.	3000 yards.	
	inches.			tons.	lbs.	F.S.	inches.	inches.	yards.	yards.	yards.	
HEAVY.	16	45	K.M.	105	...	2600	...	...	..	...	...	...
	14	45	V	82	1400	...	...	...	...	...	...	...
MEDIUM.	8	50										
	8	45	A	17½	250	2740	7	10	110	425	600	1·2
	8	40	A	15	250	2580	5½	7½	100	400	580	1·2
	6	45	('04)	8	100	3000	4½	6½	75	250	475	...
	6	50	V	8	100	3000	4½	6½	75	250	475	6
	6	40	A	6½	100	2500	3	4½	65	210	435	7
	6	40	A	6	100	2220	2½	4	35	150	360	8
	5·5	50	...	6¼	82	2725	...	...	...	...	...	12
	4·7	45	...	...	...	...	...	...	...	...	...	...
	4·7	40	A	2	45	2150	...	2½	...	...	...	8
	4·7	32	A	1⅔	36	1938	...	...	...	...	...	8·6
LIGHT	3	...	...	...	14	...	...	...	...	...	...	...
	3	40	...	2	12	2200	...	...	...	...	...	..
AA	3	40	...	...	13	...	...	...	...	...	...	...

In the Model column A = Armstrong; V = Vickers; K.M. = Kure Arsenal and Muroran Steel Works.

There are also mounted in recent ships: 6·1 inch (*Mogami* class) 6 inch, 50 cal. K.M.; 5 inch, 50 cal. AA., 1927 K.M.; 4·7 inch, 50 cal. AA.; and various marks of 4 inch and 3 inch.

(All details tabulated above are unofficial.)

Third Fleet Replenishment Law, 1937.

4 battleships, 4 aircraft carriers, and a number of cruisers, destroyers and submarines. To be completed at end of 1942.

Fourth Replenishment Law, 1940.

To involve the expenditure of Yen 5,401,000,000 (of which Yen 3,458,000,000 will be spent on new construction and 436,000,000 for warship rearmament) up to end of 1944.

Japanese Alphabet. Read name from right to left in syllables made by consonants (down) and vowels (across), in names painted on sides of smaller ships.

	A	E	I	O	U	YA	YO	YU	WA
	ア	エ	イ	オ	ウ	／	／	／	／
B	バ	ベ	ビ	ボ	ブ	ビャ	ビョ	ビュ	／
D	ダ	デ	ヂ	ド	ツ	ヂャ	ヂョ	ヂュ	／
G	ガ	ゲ	ギ	ゴ	グ	ギャ	ギョ	ギュ	グヮ
H	ハ	ヘ	ヒ	ホ	フ	ヒャ	ヒョ	ヒュ	／
K	カ	ケ	キ	コ	ク	キャ	キョ	キュ	クヮ
M	マ	メ	ミ	モ	ム	ミャ	ミョ	ミュ	／
N	ナ	ネ	ニ	ノ	ヌ	ニャ	ニョ	ニュ	／
P	パ	ペ	ピ	ポ	プ	ピャ	ピョ	ピュ	／
R	ラ	レ	リ	ロ	ル	リャ	リョ	リュ	／
S	サ	セ	シ	ソ	ス	シャ	ショ	シュ	／
T	タ	テ	チ	ト	ツ	チャ	チョ	チュ	／
W	ワ	ヱ	ヰ	ヲ	／	／	／	／	／
Y	ヤ	／	／	ヨ	ユ	／	／	／	／
Z	ザ	ゼ	ジ	ゾ	ズ	ジャ	ジョ	ジュ	／

N = ン

MUTU. NAGATO.

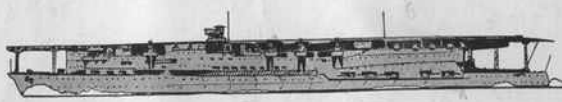
HIEI. (Probably now as HARUNA below)

HYUGA. ISE.

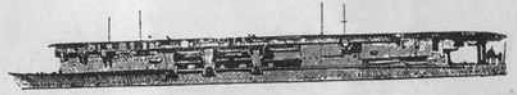
HARUNA. KIRISIMA. KONGO.

HUSO. YAMASIRO
(Latter has catapult on q.d. instead of on turret.)

HOSYO.

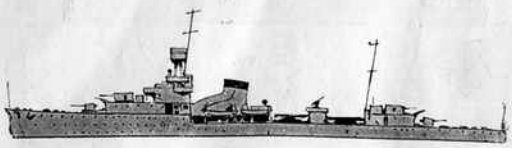


KAGA (AKAGI similar.)

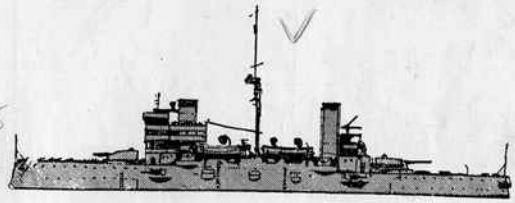


RYUZYO.

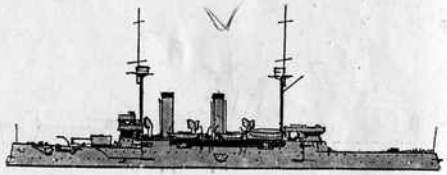
SORYU. HIRYU.
(HIRYU has light tripod mast abaft bridge.)



YUBARI.



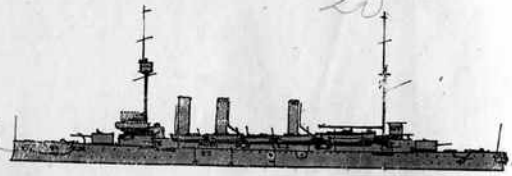
KASUGA.



TOKIWA.

MOGAMI *class*.

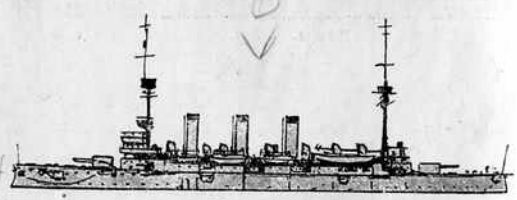
KINUGASA. KAKO.
AOBA. HURUTAKA.



ADUMA.

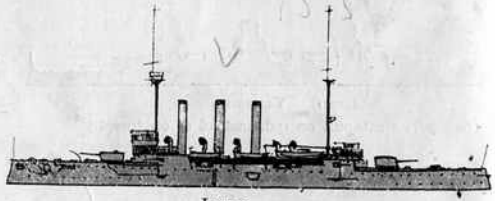
TONE, TIKUMA

NATI. ASIGARA.
MYOKO. HAGURO.

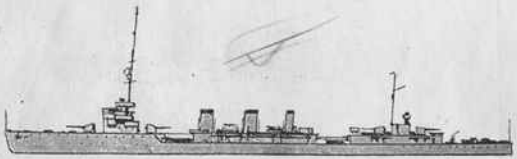


YAKUMO.

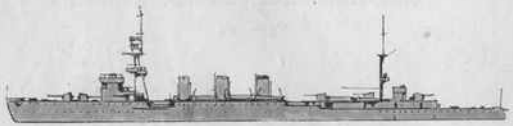
ATAGO. MAYA.
TYOKAI. TAKAO.



IDUMO.
IWATE.



TATUTA.
TENRYU. (Now fitted with tripod foremast)



KISO. TAMA. OI.
KITAKAMI.

KUMA

NATORI *class.*
(Some have spoon bows).

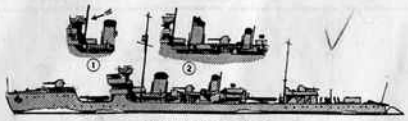
SENDAI and ZINTU (NAKA as inset).

S.C. 3 (1 and 2 similar, also probably 4–12).

S.C. 51-53

TIDORI and OTORI *classes.*

MINESWEEPERS Nos. 1—6. (5 and 6 only with tripod.)



WAKATAKE *class.*
(Inset 1, KURI *class.* Inset 2, HASU.)

AKIKAZE *class.*
(Some have had cinder screens added to funnels.)

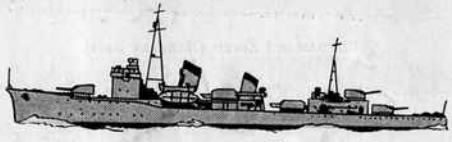
KAMIKAZE *class.*
(NAMIKAZE, NOKAZE and NUMAKAZE similar.)
(Cinder screens added to funnels of some.)

MUTUKI *class.*
(Note bow and amidships t.t.)

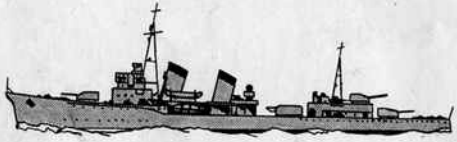
HUBUKI *class*
(Some have no shields to tubes; others a more slender first funnel.)

HIBIKI *class.*

SIGURE *class.*
(HATUHARU *class* similar.)



ASASIO *class.*



KAGERO *class.* (*Approximate*)

SIRATAKA.

YAEYAMA.

KAMOME. TUBAME.

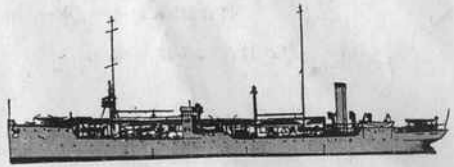
NATUSIMA *class.*

MINESWEEPERS 13 to 16.

ATAKA.

KOMAHASI.

KATORI, KASIMA.



NOTORO.

SAGA.

KOSYU.

ITUKUSIMA.

KAMOI.

OKINOSIMA.

TURUGIZAKI. TAKASAKI.

ZINGEI. TYOGEI.

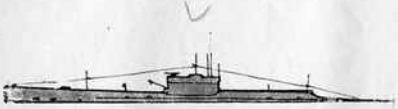
KATURIKI.

OTOMARI.

TAIGEI.

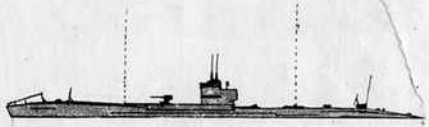
MAMIYA.

TITOSE. TIYODA. MIDUHO.

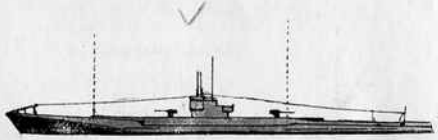


Ro. 57. 58. 59.

I. 65, 66.
(I. 68—75 similar)



I. 121—124.

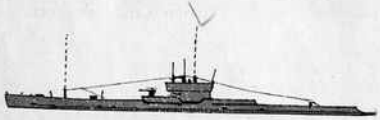


I. 1—4.

Ro. 30—32.

I. 53—64.
(Deck flush from bow to C.T.)

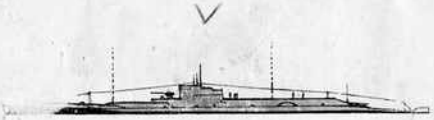
I. 5.



Ro. 60—68

I. 6—8.

Ro. 33—34.



I. 52.

New Construction.

NISSIN (Nov. 30, 1939), **TAKAMATU** (April, 1940), another (Nov. 5, 1940), and 2 more building.
Displacement: Over 40,000 tons.
Dimensions not reported.
Guns: 9—16 inch. Speed: 30 knots.

Name	*Builder*	*Laid down*	*Completed*
Nissin	Kure	March 1937	*To be* 1941
Takamatu	Yokosuka	Sept. 1937	
1 *ship*	Mitubisi	Aug. 1938	
1 *ship*	Kawasaki	1939	
1 *ship*	Kure	Dec. 1939	

Notes.—Entire accuracy of above information cannot be guaranteed in the absence of official data. There is always some possibility of confusion between these 40,000 ton ships and the smaller armoured ships listed on a later page. It is uncertain whether the fourth ship is building at the Kawasaki Yard or at Maiduru.

MUTU. 1938 *added* 1939.

(NAGATO CLASS—2 SHIPS).

NAGATO (Nov. 9th, 1919), **MUTU** (May 31st, 1920).

Standard displacement, 32,720 tons.

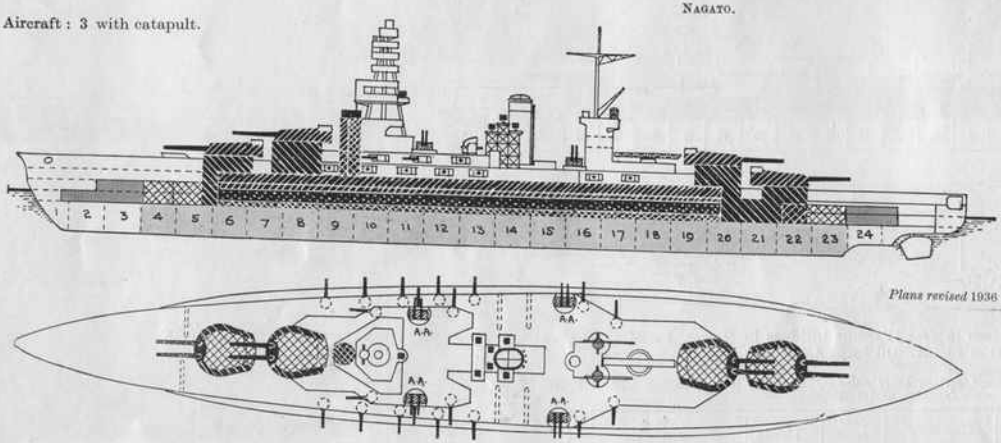
Complement, { 74 officers / 1,258 men } = 1,332.

Length, { *p.p.*, 660½ feet. / *o.a.*, 700 feet approximate } Beam, 95 feet. Draught, 30 feet *max.*

NAGATO. 1937

Guns (Japanese):
8—16 inch, 45 cal.
20—5.5 inch, 50 cal.
8—5 inch AA.
7 M.G.
Torpedo tubes (21 inch):
4 *submerged*.
Searchlights: 8.

Aircraft: 3 with catapult.



Plans revised 1936

Armour: (*unofficial*)
13″ *or* 12″ Belt ....
8″—4″ Ends .....
3½″ Deck .....
7″ deck above magazines, boilers and engine rooms.
14″ Turrets .....
″ Battery .....
12″ Conning tower .....
(Bulges and other special anti-torpedo protection.)

Machinery: Geared turbines. 4 shafts. Boilers: 21 Kanpon. Designed H.P.: 80,000 = 23 kts. (Reported increased, see notes.) Oil fuel: about 4,500 tons.

Notes.—Both built at Naval Yards as shown in table. Extensively reconstructed at same yards in 1934-36, being given bulges and triple bottoms for protection against torpedo attack, new machinery, aircraft, increased deck protection and increased elevation of 16-inch guns. Trial speed after reconstruction and reboilering reported as 26 kts.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*
Nagato	Kure	Kure	28 Aug., 1917	25 Nov., 1920	84,000 = 23·5	Kanpon
Mutu	Yokosuka	Yokosuka	1 June, 1918	24 Oct., 1921	= 23·4	

ISE (Nov. 12, 1916).

HYUGA (Jan. 27, 1917).

Standard Displacement, 29,990 tons. Complement, 1,360.

Length (*p.p.*). 640 feet. Beam, 94 feet. *Max.* draught, 28¾ feet. Length (*o.a.*), 683 feet.

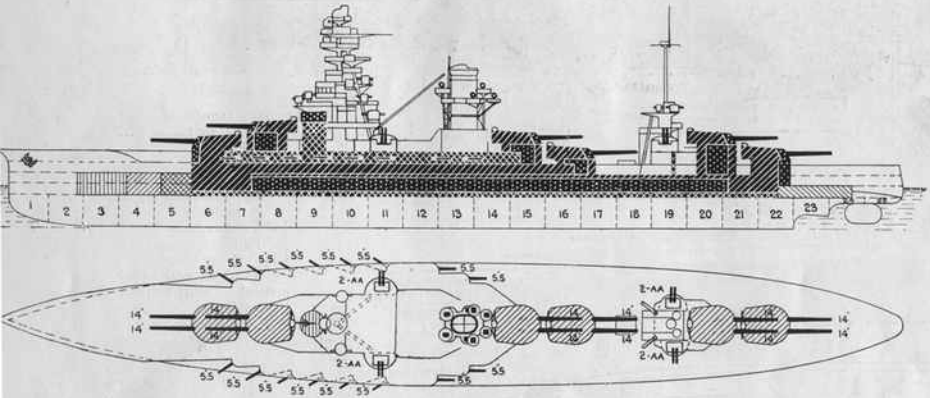
Guns (Japanese):
12—14 inch, 45 cal.
18—5·5 inch, 50 cal.
8—5 inch, AA.
7—M.G.

Torpedo tubes (21 inch):
4 *submerged*.

Aircraft: 3 with catapult.

Armour (Japanese):
12″—8″ Belts ....
5″—3″ Belt (Ends)
2½″—1½″ Decks ..
12″—8″ Turrets ..
6″ Battery .....
12″—6″ C.T. ....

ISE. 1937.



Machinery: Brown-Curtis turbines in *Ise*; Parsons turbines in *Hyuga*. 4 shafts. Boilers: 24 Kanpon.* Designed H.P. 45,000 = 23 kts. Oil fuel: 4,500 tons.

*General Note concerning boilers of these and certain other ships: "Kanpon" is a Japanese Admiralty type of W.T. boiler, resembling Yarrow type, with Japanese modifications.

Name	*Built by*	*Machinery*	*Laid down*	*Completed*	*Trials. H.P. = kts.*
Ise	Kawasaki Co.	Kawasaki Co.	10.5.15	15.12.17	= 23·3.
Hyuga	Mitubisi Co.	Mitubisi Co.	6.5.15	30.4.18	

HYUGA. 1938, *added* 1939.

HUSO (March 28th, 1914),

YAMASIRO (Nov. 3rd, 1915).

Standard Displacement, 29,330 tons.

Complement, 1243 and 1272, respectively.

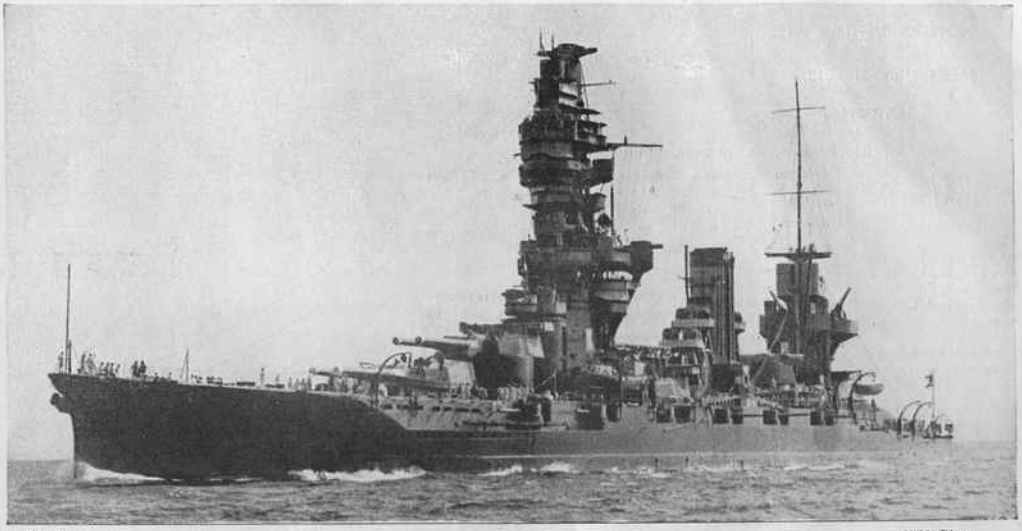
Length { (p.p.) 630 feet. / (o.a.) 673 feet. } Beam, 94 feet. *Max.* draught, 28½ feet.

Guns (Japanese):
12—14 inch, 45 cal.
16—6 inch, 50 cal.
8—5 inch AA.
26 machine.
4 landing.

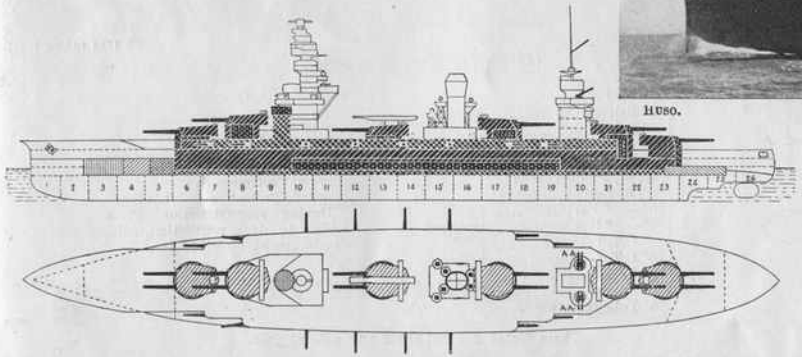
Torpedo tubes (21 inch):
2 *submerged.*

Aircraft:
3, with catapult—on turret amidships in *Huso* and on q.d. in *Yamasiro.*

Armour:
12″–8″ Belt (amidships)
5″, 4½″, 4″ Belt (bow)
4″ Belt (stern)
8″ Upper belt
6″ Battery
12″–8″ Barbettes
12″—8″ Gunhouses
12″ & 6″ C.T.
(Bulkheads 12″ to 4″)
2″ & 1½″ Decks
—″ Roofs { Gunhouses / C.T. }



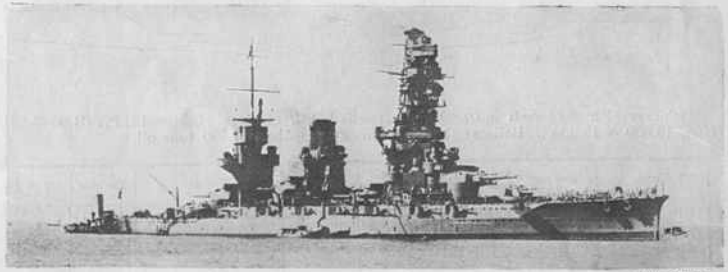
HUSO. 1934 *Photo.*



Machinery: Brown-Curtis turbines. 4 shafts. Boilers: Kanpon. Designed H.P. 40,000= 22·5 kts. Fuel: 4,500 tons oil.

General Notes.—Both ships were thoroughly reconstructed 1932-33 and altered in profile. The replacing of the 24 Miyabara boilers by (?) 8 Kanpon has enabled the forward boiler room to be converted to other uses, and there is now only one funnel fitted with an anti-flare top. The base of the foremast has been enlarged and fitted with wings, and the tripod mainmast is replaced by a tower base on which AA guns are mounted. No 3 turret in *Huso* only now bears forward, and has a catapult on the crown, while additional searchlights have been grouped around the funnel. A large amount of additional armour and anti-torpedo structure has been worked into the ships, but details are lacking. Formerly 14 inch guns were reported as having an elevation of 25°, but this has probably now been increased. Anti-aircraft armament augmented during 1936–37 refit.

Name.	*Builder.*	*Machinery.*	*Laid down*	*Completed*	*Trials. H.P. = kts.*	*Turbine*	*Boilers*	*Best recent speed*
Huso	Kure	Kawasaki	11 3.12	8.11.15	46,500= 23.	Curtis	Kanpon	
Yamasiro	Yokosuka	Kawasaki	20.11.13	31. 3.17	... ...	Curtis	Kanpon	



YAMASIRO 1936 *Official.*

(Kongo Class—4 Ships.)

KONGO (May 18th, 1912).
HIEI (Nov. 21, 1912).
Employed as Seagoing Training Ships.

HARUNA (Dec. 14th, 1913), **KIRISIMA** (Dec. 1st, 1913).

Standard displacement, 29,330 tons. Complement, 980.

Length (*p.p.*) 653½ feet. (*o.a.*) 704 " — *Kirisima* Beam, 95 feet. *Kongo* " 92 " *Hiei* " 92 " *Haruna* " 95 " — *Max.* draught, 27½ feet *Mean*, 20¾ *feet.*

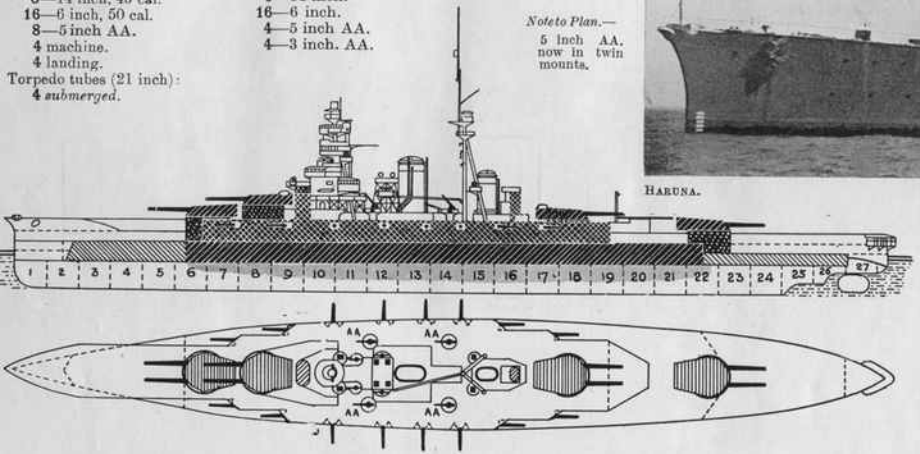
Aircraft: 3

Guns (*see Notes*):
8—14 inch, 45 cal.
16—6 inch, 50 cal.
8—5 inch AA.
4 machine.
4 landing.

Hiei:
6—14 inch.
16—6 inch.
4—5 inch AA.
4—3 inch. AA.

Note to Plan.—5 inch AA. now in twin mounts.

Torpedo tubes (21 inch):
4 *submerged.*



HARUNA. 1934 (*added* 1935).

(*Additional photos on following page.*)

Armour (Krupp):
Vertical:
8" Belt (amidships) .....
3" Belt (ends) .....
6" Upper belt .....
6" Battery .....
9", 6", 5" Bulkheads (*f*)
8", 6" Bulkheads (*aft.*)
10"— " Barbettes .....
9"— " Gunhouses .....
..." C.T. base .....
10" C.T. (" hood) .....
" Fore comm. tube ..
6" Torpedo con. tower
8" Tube (C.T. tower) ...

Armour (H.T.?):
Decks:
" Forecastle .....
2½" Main .....
" Middle .....
" Lower .....
Special Protection H.T.
Torpedo Protection Bulkheads.

During reconstruction 4" was added to deck protection, raising displacement by 3,000 tons.

Machinery: Parsons 4-shaft (in *Haruna* only, Curtis 4-shaft) turbines. Designed H.P.: 64,000=26 kts. (*Hiei*, 13,800 = 18 kts.). Boilers: 16 Kanpon. Fuel: About 4,500 tons oil.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials H.P.*	*Turbine*	*Re-fit*
Hiei	Yokosuka	Mitubisi	4.11.11	4.8.'14		Parsons	
Kongo	Vickers	Vickers	17.1.11	16.8.'13		Parsons	1936
Haruna	Kawasaki	Kawasaki	16.3.12	19.4.'15		Curtis	1926
Kirisima	Mitubisi	Mitubisi	17.3.12			Parsons	1925

General Notes.—*Kongo* 1910–11 Programme, others 1911–12 Programme. Designed by Sir George Thurston. For *Haruna* 30% of material was imported and erected in Japan. 3 planes added to equipment, 1927. All 4 refitted 1926–30, and bulges added, reducing speed by over a knot. Funnels altered on conversion to oil fuel only. *Kongo* completely rebuilt, 1935–37, being given additional protection against torpedo and aircraft attack. *Hiei*, de-militarised for Training purposes, reported to be in hand for re-armament, but this is not officially admitted.

These Notes are not from any official data.

Gunnery Notes.—In *Kongo* guns are Vickers models: but in other three ships all calibres are of Japanese manufacture. *Kongo* has combined Vickers (hydraulic) and Janney-Williams (electric) manœuvring systems for her barbettes; there is also a small auxiliary hydraulic installation, generally used for cleaning purposes, which can be used in emergency for working the 14-inch guns.

Armour Notes.—Main belt is 12' 5" deep, 8" thick, and extends between Barbettes Nos. 1 and 4. Upper belt between Barbettes Nos. 1 and 3, 6" thick, and carried up to forecastle deck. Bulkheads: Main belt is closed by diagonal bulkheads of 8"—6" aft and by a 6"—5" bulkhead forward. Upper belt closed by 6" bulkhead aft and 9"—6" bulkhead forward. There is also a narrow 3 inch strip of armour, 2 feet 6 inch deep under whole length of main belt: this is not shown on plans.

Anti-Torpedo Protection Notes.—Internal sub-division by longitudinal and cross bulkheads. Extra protection given by armour to all magazine spaces. Port and starboard engine rooms are divided by an unpierced longitudinal bulkhead along keel-line.

Torpedo Notes.—Tubes are twin submerged type, at varying levels, some being only 6 feet below waterline. Except in the case of the tubes in wake of No. 3 Barbette, Starboard Tube is before Port Tube. *Kongo* has combined hydraulic and electrically-operated tubes. In *Haruna*, tubes are Armstrong 21-inch side-loading, hydraulically operated.

Engineering Notes.—In *Kongo*, and *Kirisima* Parsons turbines have H.P. rotors on outboard shafts and L.P. on inner shafts with astern turbines aft and in same casing. Reconstruction included new Kanpon boilers.

For particulars of these ships, see preceding page

HIEI as demilitarised. 1933 *Photo.*

KONGO (funnels of equal height). 1938, *added* 1939.

KIRISIMA. 1935.

(Building or completing.)

KADEKURU (Name doubtful) (Sept. 1939), **KASINO** (Mitubisi, Jan 26, 1940), **HACHIJO** (April 10, 1940), and another (building).

Displacement: 12,000 to 15,000 tons.

Dimensions: not reported.

Armour: 6 in. side.

Guns: **6**—12 inch, 50 cal.
12—5 inch A.A.

Insufficient information exists to enable a plan to be provided; but it is believed that the 12 inch guns are mounted in two triple turrets.

Machinery: Geared turbines. Speed reported as 30 knots.

Name	*Builder*	*Laid down*	*Completed*
Kadekuru	Yokosuka	1937	1940 ?
Kasino	Mitubisi	March 1938	*To be* 1941
Hachijo	Sascho	June 1938	,, 1941
1 *ship*	Malduru	1938	,, 1942

Note.—Exactitude of above information cannot be guaranteed, and it is suspected that the first name may have been mutilated in transmission. Third name has also been reported (but probably incorrectly) as *Hasino*, and the builders as Mitubisi. It would appear that the design of these vessels is based on that of the German "pocket battleships", so that they are actually heavy armoured cruisers rather than battleships.

(*Completing.*)

SYOKAKU (June 2, 1939), **ZUIKAKU** (Nov. 27, 1939).

Displacement: *circa* 14,000 tons.
Dimensions: 800 (*o.a.*) × — × — feet.
Guns: 12—5 inch A.A.
Machinery: Geared turbines.

Aircraft: 45.
Speed: 30 kts.

Name	*Builder*	*Laid down*	*Completed*
Syokaku	Yokosuka	11 Dec. 1937	*To be* 1941
Zuikaku	Kawasaki	1938	,, 1941

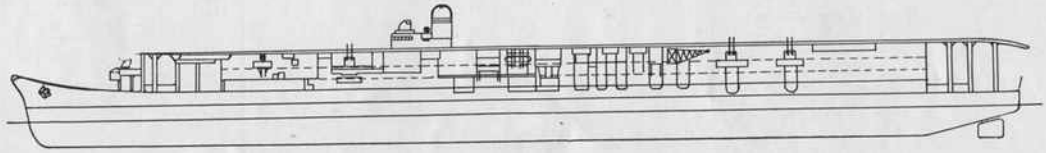
Note.—These names mean *Crane* and *Lucky Stork* respectively. *Zuikaku* has also been reported as built by Mitubisi.

(Soryu Class—3 ships)

Soryu (Hiryu similar, but with light tripod mast abaft bridge on starboard side) 1939.

SORYU (Dec. 23, 1935).
HIRYU (Nov. 16, 1937).
KORYU (1939?)

Displacement: 10,050 tons.
Dimensions: 688½ × 68¼ × 16½ feet (*mean* draught).
Guns:
12—5 inch AA. (paired).
24—smaller.
Searchlights: 4.

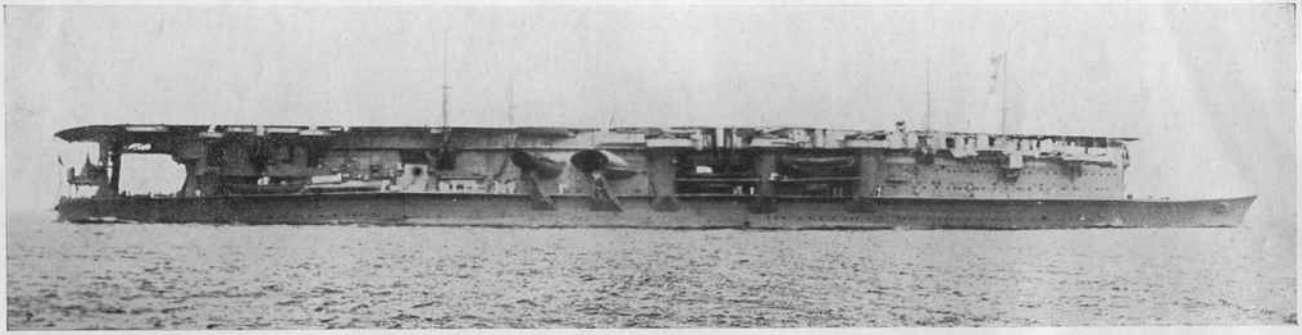


Machinery: Geared turbines. 4 shafts. S.H.P.: 60,000 = 30 kts. 8 Kanpon boilers.

Reported unofficially to have accommodation for 30 to 40 aircraft, and to be fitted with gyro-stabilisers.

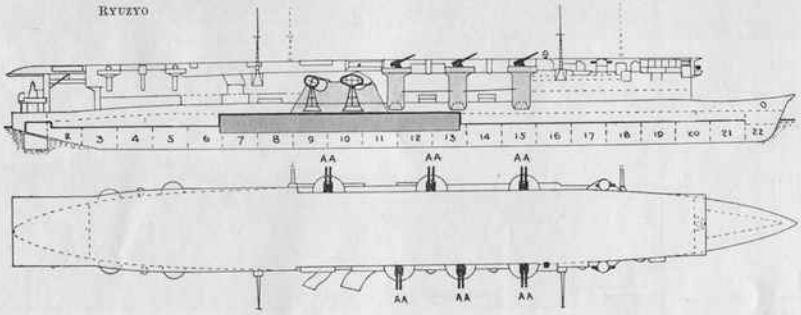
Note.—These names mean *Blue Dragon*, *Flying Dragon* and *Shining Dragon*, respectively.

Name	*Builder*	*Laid down*	*Completed*
Soryu	Kure	20/11/34	29/12/37
Hiryu	Yokosuka	8/7/36	5/7/38
Koryu	Kure	1937	1940



1933 *Photo, Official.*

RYUZYO



RYUZYO (April 2, 1931).

Displacement: 7,100 tons. Complement: 600.

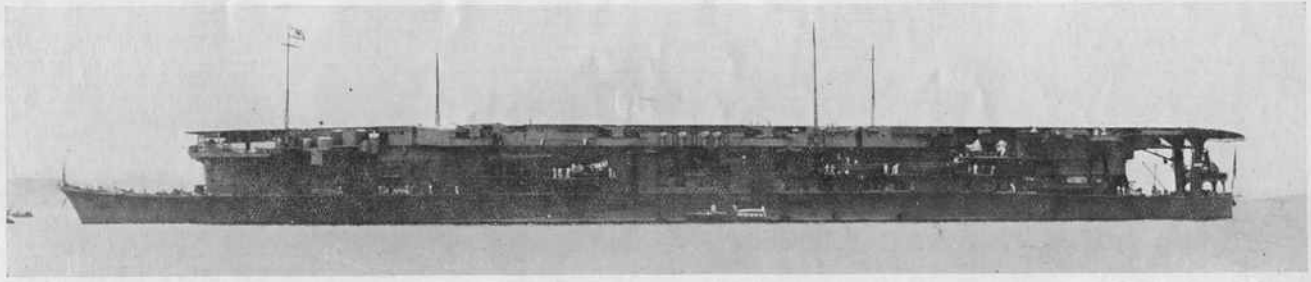
Length: 548 feet. Beam: 60½ feet. Draught: 15½ feet.

Guns: **12**—5 inch AA. **24** M.G. 24 aircraft carried (unofficial).

Machinery: Geared turbines. Kanpon Boilers. S.H.P. 40,000 = 25 kts.

Laid down Nov. 26, 1929. Completed May 9, 1933.

Note.—Smoke discharge is arranged through 2 funnels projecting from starboard side. This ship, though completed at Yokosuka Naval Yard, was actually laid down and launched at the Yokohama Dock Company's establishment.



1934 *Photo, Official.*

RYUZYO.

AKAGI (April 22, 1925).

Displacement, 26,900 tons.

Length (*p.p.*) 763 feet.

Beam, 92 feet.

Draught, 21¼ feet.

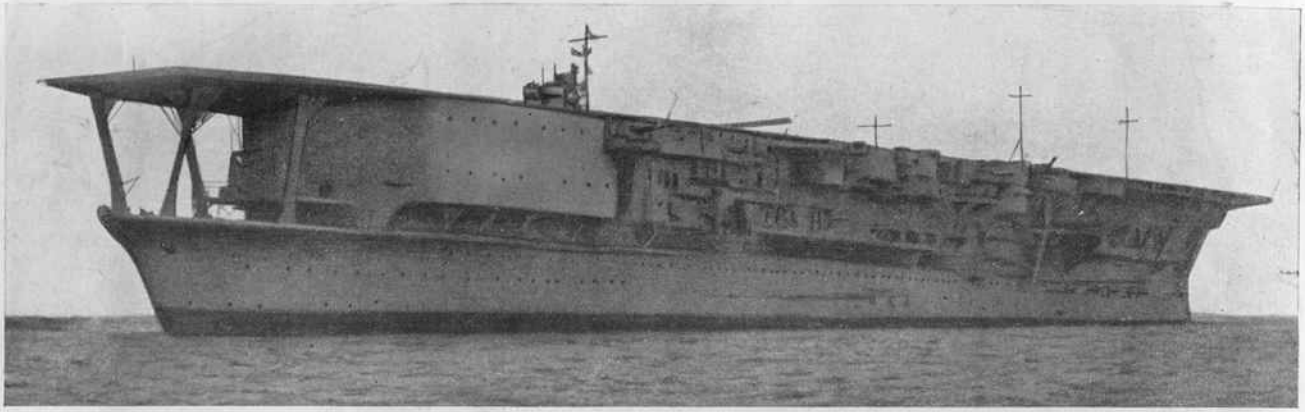
KAGA (17th Nov., 1921).

Displacement, 26,900 tons.

Length (*p.p.*) 715 feet.

Beam 102¾ feet.

Draught 21⅓ feet.



KAGA. (*Akagi* now of similar appearance.)

Added 1939

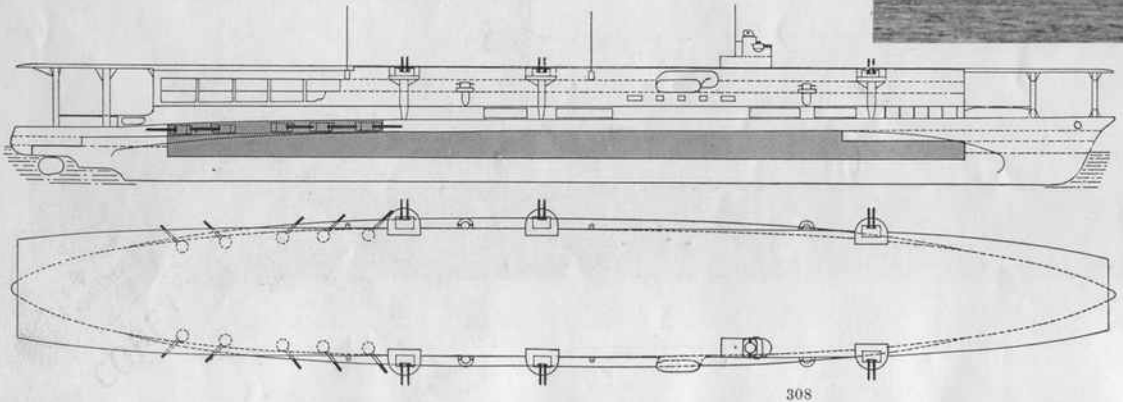
Guns : 10—8 inch.
16—4·7 inch AA.
28—M.G.

Aircraft: *Akagi*, 50; *Kaga*, **60** (Maximum capacity; normal complement is unofficially reported to be 30.)

Armour:
On side and gunhouses, thickness doubtful.

Machinery: Brown-Curtis geared turbines. 4 shafts. Designed S.H.P.: *Akagi*, 131,200 = 28.5 kts.; *Kaga*, 91,000 = 23 kts. Fuel: *Akagi*, 3,900 tons oil, 2,100 tons coal; *Kaga*, 5,300 tons oil. *Akagi* 19, *Kaga* 12 Kanpon boilers.

1938



Notes.—*Akagi* was laid down on Dec. 6th, 1920, as a battle cruiser of 42,000 tons, under 1917 "Eight Four" Fleet Law. As a result of the Washington Treaty, she was converted into an aircraft carrier, forming part of 1924 Programme. Completion date, March 25, 1927. Though she has accommodation for 50 planes, only about 30 are carried normally. There are 2 aircraft lifts on starboard side. Completely refitted, 1937–39, and is now very similar to *Kaga* in appearance.

Sister ship, *Amagi*, laid down at Yokosuka Dockyard, and launched late in 1922, was so badly damaged by earthquake and fire, September, 1923, that her construction was abandoned, and *Kaga's* hull was appropriated to replace her.

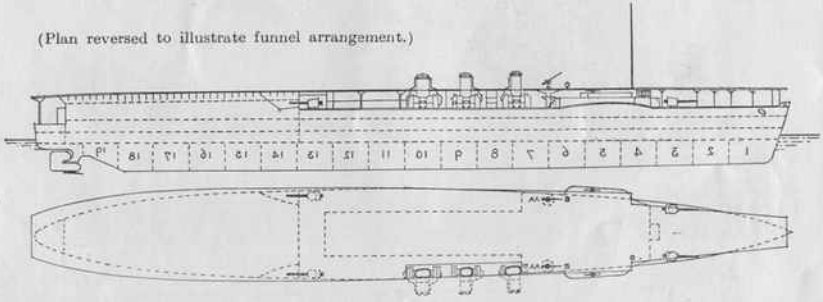
Kaga was originally laid down July 19, 1920, as a battleship of 39,000 tons, under the 1917 "Eight-Four" Fleet Law. As a result of the Washington Treaty, she was converted into an aircraft carrier, forming part of the 1923 Shipbuilding Programme, and was completed March 31, 1928. She was laid down and launched at the Kawasaki Co.'s yard at Kobe, but was towed to Yokosuka for completion as an aircraft carrier. Smoke was formerly discharged through huge trunks on both sides, extending for nearly half the length of the ship and turning outboard towards the stern, but these were removed in course of 1935–37 refit at Sasebo.

HOSYO. *Added* 1935.

HOSYO with funnels lowered to horizontal position. 1932 *Photo.*

HOSYO (Asano Co., Turumi, November 13, 1921). Displacement: 7,470 tons. Dimensions: 510 (*p.p.*) × 62 × 20¼ feet. Guns: 4—5·5 inch. 2—3 inch AA. 2 M.G.

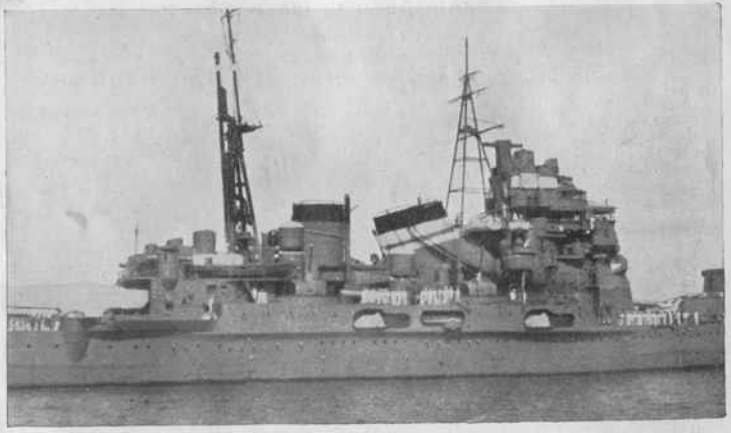
(Plan reversed to illustrate funnel arrangement.)



Machinery: 2 sets geared turbines. S.H.P.: 30,000 = 25 kts. 8 Kanpon boilers. Fuel: Oil only, 550 tons. Can carry 26 aircraft with all accessories, etc., though normal complement seldom exceeds 20. (Unofficial). Sperry gyro-stabiliser fitted. 2 searchlights.

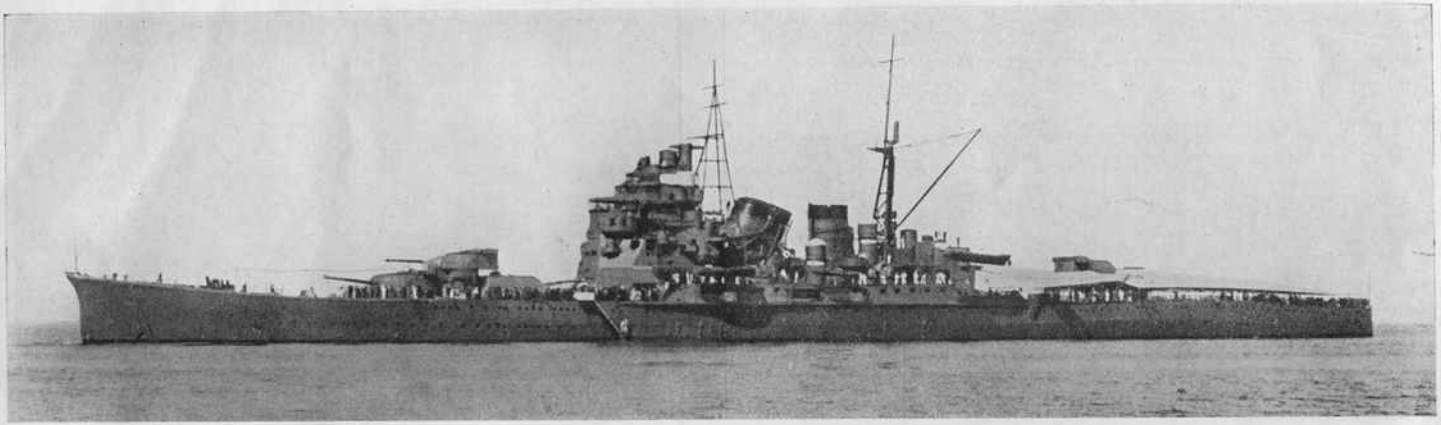
Note.—Laid down December 16, 1919; completed December 27, 1922. The building of a second ship of this type (to have been named *Syokaku*) was cancelled owing to Washington Treaty, but this name was ultimately appropriated for an aircraft carrier launched in 1939.

ATAGO. 1933 *Official Photo.*



MAYA. 1933 *Photo.*

(For particulars of above ships, see following page).



MAYA. 1932 *Photo.*

(*Additional views on preceding page.*)

(ATAGO CLASS—4 SHIPS).

ATAGO (June 16th, 1930), **TAKAO** (May 12th, 1930),
TYOKAI (April 5, 1931), **MAYA** (Nov. 8, 1930).

Standard displacement, 9,850 tons.
Complement, 692.

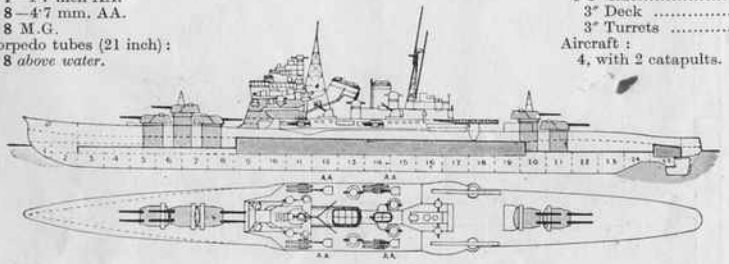
Length: 630 (*p.p.*), 650 (*o.a.*) feet. Beam: 62½ feet. Draught: 16⅔ feet (*mean*).

Guns:
10—8 inch, 50 cal.
4—4·7 inch AA.
8—4·7 mm. AA.
8 M.G.

Torpedo tubes (21 inch):
8 *above water.*

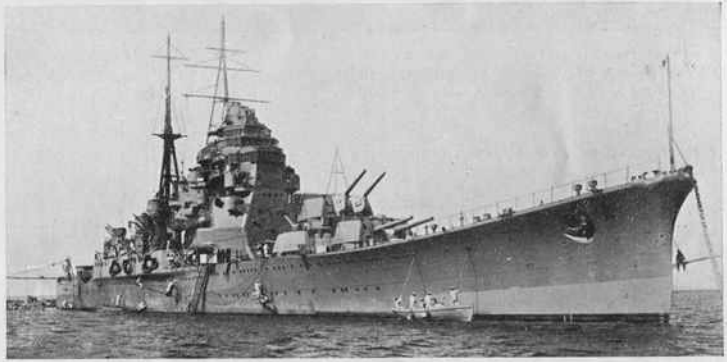
Armour (unofficial):
3-4″ Side.....
3″ Deck .....
3″ Turrets .....

Aircraft:
4, with 2 catapults.



Machinery: Geared turbines. Boilers: 12 Kanpon. S.H.P. 100,000 = 33 kts. *max.* (32 kts. at deep load). Oil: 2,000 tons. Radius at 14–15 kts.: 14,000 miles.

Notes.—Provided for under 1925 and later Programmes. Triple hull, designed to give greatest possible protection against submarines. Vertical and deck protection over boiler and machinery spaces is 410 feet long. Guns are a new model with very high muzzle velocity. Cost £2,200,000 each.



ATAGO. 1932 *Photo.*

Name	*Builder*	*Machinery*	*Laid down*	*Completed*
Atago	Kure	Kure	28/4/27	30 March 1932
Takao	Yokosuka	Yokosuka	28/4/27	31 May 1932
Tyokai	Mitubisi	Mitubisi	26/3/28	30 June 1932
Maya	Kawasaki, Kobe	Kawasaki	4/12/28	30 „ 1932

ASIGARA.

ASIGARA.

(All 4 photos, R. Perkins).

ASIGARA.

ASIGARA.

(NATI CLASS—4 SHIPS.)

NATI (June 15th, 1927), **MYOKO** (April 16th, 1927), **ASIGARA** (April 22nd, 1928), **HAGURO** (March 24th, 1928).

Standard displacement, 10,000 tons.

Complement, 692.

Length (*p.p.*), 630 feet, (*o.a.*), 640 feet. Beam, 62½ feet. Draught, 16½ feet (*mean*).

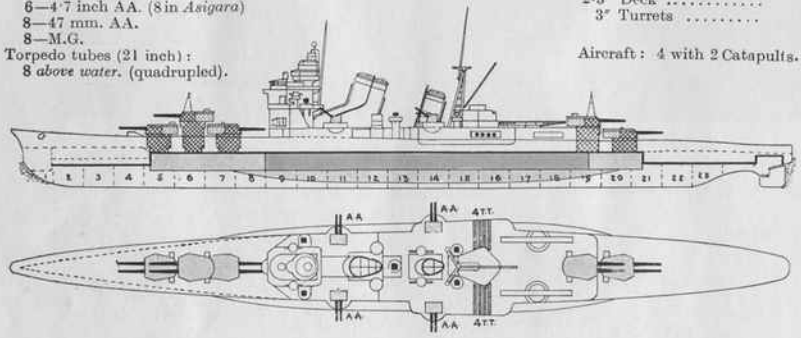
Guns:
10—8 inch, 50 cal.
6—4·7 inch AA. (8 in *Asigara*)
8—47 mm. AA.
8—M.G.

Torpedo tubes (21 inch):
8 *above water*. (quadrupled).

Note to plan: T.T. actually are slightly further aft than shown, above section 18.

Armour (unofficial):
3" Side .....
2-3" Deck .....
3" Turrets .....

Aircraft: 4 with 2 Catapults.



Machinery: Geared turbines. Boilers: 12 Kanpon. S.H.P. 100,000 = 33 kts. *max.* (32 kts. at deep load). Oil: 2,000 tons. Radius at 14-15 kts.: 14,000 miles.

Notes.—Provided for under 1923 and later Programmes. Triple hull, designed to give greatest possible protection against submarines. Vertical and deck protection over boiler and machinery spaces is 410 feet long. Guns are a new model with very high muzzle velocity. Cost £2,200,000 each.
All 4 ships extensively refitted 1934–36, fore funnel being heightened, after control structure extended, anti-aircraft armament augmented and torpedo tubes rearranged in quadruple mountings.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*
Nati	Kure	Kure	26/11/24	26 Nov. 1928	
Myoko	Yokosuka	Yokosuka	25/10/24	31 July, 1929	
Asigara	Kawasaki Kobe	Kure	11/4/25	20 Aug. 1929	
Haguro	Mitubisi	Yokosuka	16/3/25	25 April, 1929	

MYOKO 1935 (*Added* 1936)

(*Additional illustrations on preceding page.*)

MYOKO. 1938, *B. R. Goodfellow, Esq.*

(Kako Class—4 Ships.)

KAKO (April 10, 1925), **HURUTAKA** (Feb. 25, 1925),
KINUGASA (Oct. 24th, 1926), **AOBA** (Sept. 25th, 1926).

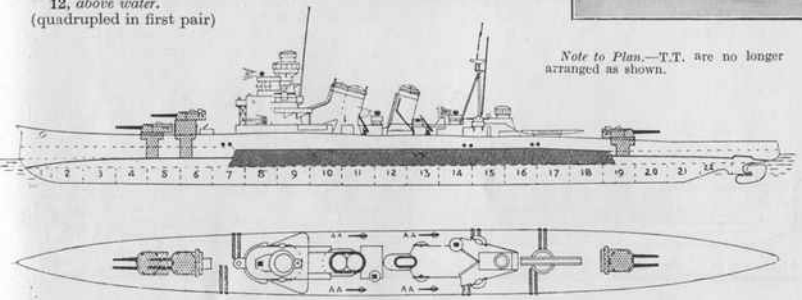
Standard Displacement, 7,100 tons. Complement, 604.

Length (*w.l.*) 580 feet. (*o.a.*) 595 feet. Beam: 50¾ feet.
Draught: 14¾ feet (*mean*).

Aircraft: 2, with catapult

Guns:
6—8 inch.
4—4·7 inch AA.
10—M.G.
Torpedo tubes (21 inch):
12, *above water*.
(quadrupled in first pair)

Armour: (Unofficial)
2" Side amidships ....
2" Deck .....
1½" Turrets .....
(Bulges added, 1938–39)

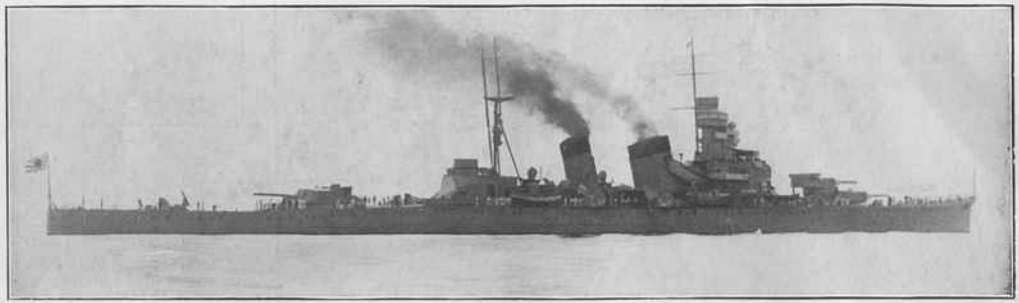


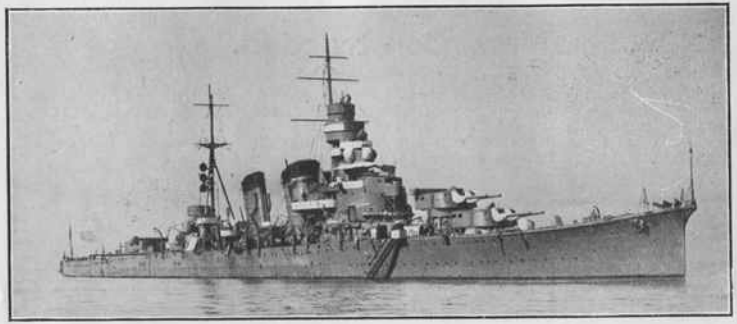
Note to Plan.—T.T. are no longer arranged as shown.

Machinery: Geared turbines. Boilers: 12 Kanpon (10 oil, 2 mixed). S.H.P.: 95,000 = 33 kts. (said to have been considerably reduced by addition of bulges). Fuel: 1,800 tons oil.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*
Kako	Kawasaki, Kobe	Kawasaki	17 Nov., 1922	20 July, 1926	
Hurutaka	Mitubisi, Nagasaki	Mitubisi	5 Dec., 1922	31 Mar., 1926	
Kinugasa	Kawasaki, Kobe	Kawasaki	23 Jan., 1924	30 Sept., 1927	
Aoba	Mitubisi, Nagasaki	Mitubisi	4 Feb., 1924	20 Sept., 1927	

Notes.—Provided for under 1922 and 1923 Programmes. Noteworthy features introduced in these ships are the undulating deck line, unusual bridgework and masts, trunked and heavily raked funnels and angled hull form. As originally completed with six single turrets, *Kako* and *Hurutaka* proved deficient in seakeeping qualities. They were therefore rebuilt at Kure on similar lines to two later ships in 1938–39.





Aoba. 1927 *Photo* (*added* 1928).

Aoba. Kinugasa. 1934 *Photo*.

New Construction.

At least 5 cruisers believed to be of about 9,000 tons have been reported to be under construction for some two or three years past. Possibly **TUGARU** (Yokosuka, June 5, 1940), **SUMIDA** (Hudinagata, Oct. 30, 1939) and **HASIDATE** (Hudinagata, Dec. 23, 1939), are three of them, but exact information is lacking, and 2 latter may prove to be minelayers or gunboats. It is reported that the armament is **12**—6·1 inch and the speed 34 kts.

Photo wanted.

TONE (Nov. 21, 1937), **TIKUMA** (March 19, 1938).

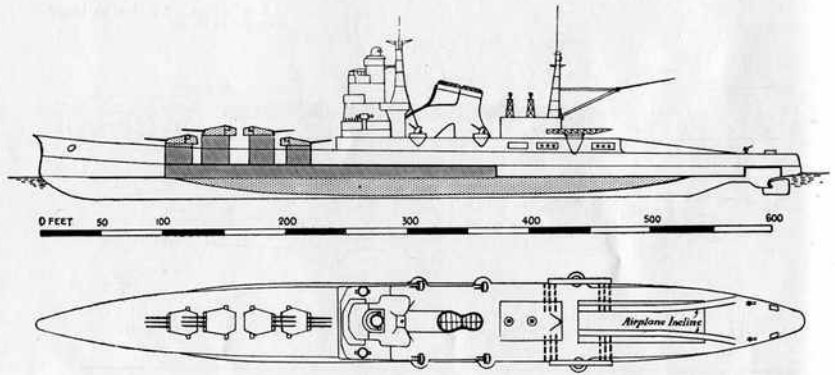
Displacement : 8,500 tons. Complement : 850.

Length : 614¼ feet (*pp.*). Beam : 63 feet. Draught : 14¾ feet (*mean*).

Guns :
12—6·1 inch.
8—5 inch AA.
12 M.G.

Aircraft : 4

Armour :
2″ Deck.
2″ Side.



Machinery : 4 sets geared turbines. 4 shafts. S.H.P. : 90,000 = 33 kts. Boilers : 8 Kanpon.

Name.	*Builder and Machinery.*	*Laid down.*	*Completed.*
Tone	Mitubisi	1 Dec., 1934	20 Nov., 1938
Tikuma	Mitubisi	1 Oct., 1935	1939

Note.—Design incorporates various improvements resulting from experience with *Mogami* type, armament being reduced to save weight. Both laid down under 1933 Fleet Replenishment Law.

KUMANO 1938.

(MOGAMI CLASS—4 SHIPS.)

MIKUMA (May 31st, 1934) **MOGAMI** (March 14th, 1934), **SUZUYA** (Nov. 20th, 1934), **KUMANO** (Oct. 15th, 1936).

Standard displacement: 8,500 tons. Complement: 850.

Length (*pp.*) 625 feet, (*o.a.*) 639¾ feet; Beam, 59¾ feet; Draught, 14¾ feet (*mean*).

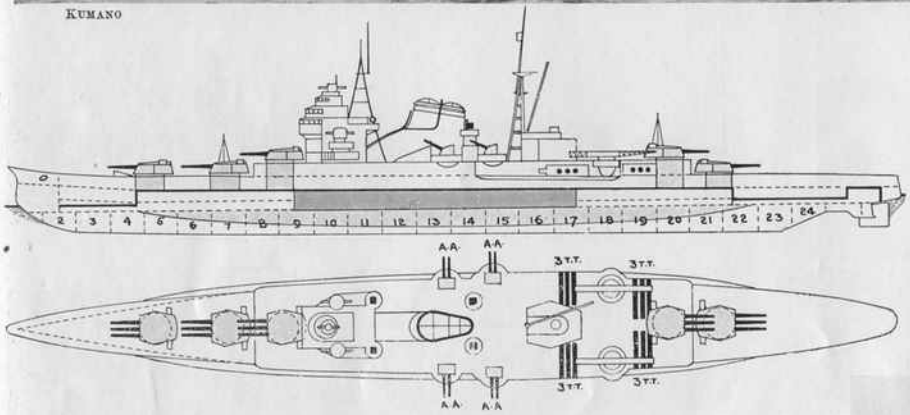
Guns:
15—6·1 inch.
8—5 inch AA.
12 M.G.

Torpedo Tubes:
12—21 inch, *above water* (in triple mounts)

Searchlights:
3

Aircraft:
4, with 2 catapults.

Armour: (Unofficial)
2″ Deck.
2″ Side.



Name	*Builder*	*Machinery*	*Begun*	*Completed*
Mikuma	Mitubisi	Mitubisi	24 Dec., 1931	29 Aug., 1935
Mogami	Kure		27 Oct., 1931	28 July, 1935
Suzuya	Yokosuka		11 Dec., 1933	31 Oct., 1937
Kumano	Kawasaki	Kawasaki	5 April, 1934	31 Oct., 1937

General Notes.—All four laid down under Fleet Replenishment Law of 1931. *Mogami* and *Mikuma* though delivered complete on dates named above, did not join the fleet until more than a year later, various modifications having to be made as the result of trials. *Suzuya* and *Kumano's* official completion date uncertain. Trials began in July, 1937.

Appearance Notes.—There are sundry small differences in appearance as completed.

Machinery: 4 sets geared turbines. 4 shafts. Designed S.H.P.: 90,000 = 33 kts.
Boilers: 10 Kanpon.

MIKUMA 1939

(Zintu Class—3 Ships.)

ZINTU (8th Dec., 1923), **NAKA** (24th March, 1925),

SENDAI (30th Oct., 1923).

Standard displacement, 5195 tons. Complement, 450.

Length (*p.p.*), 500 feet; (*o.a.*) 535 feet. Beam, 46¾ feet.
Draught, 15 feet 10½ in.

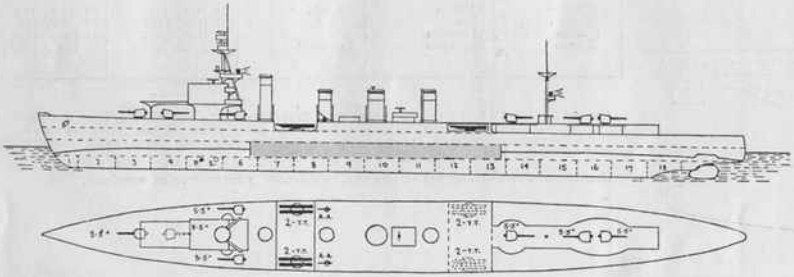
Guns:
7—5·5 inch, 50 cal.
2—3 inch, 13 pdr., 40 cal. AA.
6 M.G.

Armour: (Unofficial)
2″ Side (amidships)
2″ C.T.

Torpedo tubes:
8—21 inch, *above water*.

Aircraft: 1, with catapult

Note to Plan.—Now carry catapult in position shown in photos.



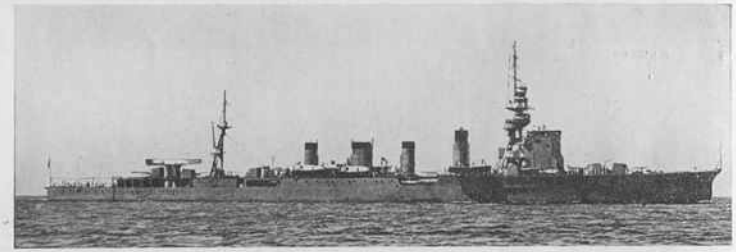
Machinery: 4 geared turbines. 4 shafts. Boilers: 12 Kanpon. Designed S.H.P. 70,000 = 33 kts. Fuel: 300 tons *coal*. 1200 tons *oil*.

Name	*Builder*	*Machinery*	*Begun*	*Completed*	*Trials*
Zintu	Kawasaki, Kobe	Kawasaki	4 Aug., '22	31 July, '25	
Sendai	Mitubisi, Nagasaki	Mitubisi	16 Feb., '22	29 Apr., '24	
Naka	Yokohama Dock Co.	Mitubisi	10 June, '22	30 Nov., '25	

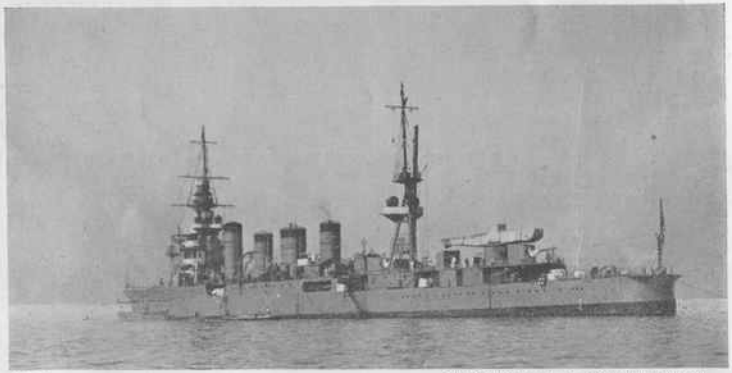
General Notes.—Slightly enlarged and improved editions of *Natori* class on following page. The launch of *Naka* was delayed by earthquake of Sept., 1923. Catapult fitted 1929. Foremost boiler is fitted for mixed firing.

All this class undergoing extensive refits, 1939-40.

Sendai. Note 3rd funnel appears taller than 2nd and 4th. *Added* 1939.



Naka. (Aftermost gun now mounted nearer stern.) 1935 *appearance.*



Zintu. 1938, *Official courtesy of Navy Dept., Tokyo.*

"Natori" Class (6 Ships).

ISUZU (29th Oct., 1921). **NAGARA** (25th April, 1921).

NATORI (16th Feb., 1922). **YURA** (15th Feb., 1922)

KINU (29th May, 1922). **ABUKUMA** (16th March, 1923)

Standard displacement, 5170 tons. Comp., 438.
Length (*p.p.*) 500 feet, (*o.a.*) 535 feet. Beam, 46¾ feet.
Draught, 15 feet 10½ in.

Guns :—
7—5·5 inch, 50 cal.
2—3 inch, 13 pdr. 40 cal. AA.
2 M.G.

Torpedo tubes: (21 inch)
8 (*above water*).

Aircraft:
1, with catapult.

Armour: (Unofficial)
2" Side (amidships).
2" C.T.

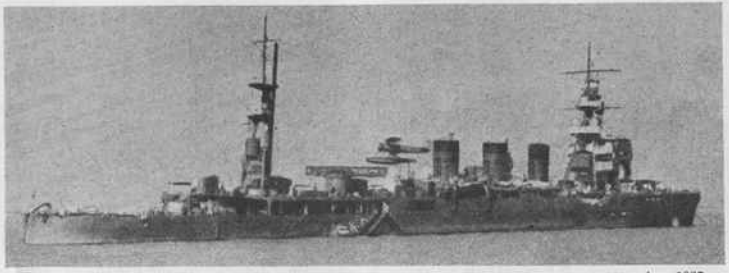
Machinery: 4 geared turbines. 4 shafts. Boilers: 12 Kanpon, 8 oil and 4 coal burning. Designed S.H.P.: 70,000 = 33 kts.
Fuel: 350 tons coal, 1,150 tons oil.

Plan: Details generally as *Kuma*. Formerly had aircraft hangar forward but this has been removed from most if not all of class.

Name	*Builder*	*Machinery*	*Begun*	*Completed*	*Trials (unofficial)*
Isuzu	Uraga Dock Co.	Mitubisi	10 Aug., '20	15/8/23	65,000=33.4
Nagara	Saseho	Kawasaki	9 Sept., '20	21/4/22	
Natori	Mitubisi, Nagasaki	Mitubisi	14 Dec., '20	15/9/22	
Kinu	Kawasaki Co., Kobe	Kawasaki	17 Jan., '21	10/11/22	
Yura	Saseho	Kawasaki	21 May, '21	20/3/23	
Abukuma	Uraga Dock Co.	Mitubisi	8 Dec., '21	26/5/25	

General Notes.—Commencement authorised by 1919 Naval Programme. Cost of each ship is said to be £1,250,000. Completion of Abukuma was delayed owing to earthquake damage at Uraga Yard in Sept., 1923. *Abukuma* taken in hand for modernisation, 1939.

Isuzu. (*Yura* similar). 1934 (*added* 1935).



Kinu. Aug. 1937.

Natori and Abukuma (showing catapult mounted between guns Nos. 5 and 6). 1934 *Photo*

JAPAN—Second Class Cruisers

KUMA CLASS—5 SHIPS.

KUMA (July 14th, 1919), **TAMA** (Feb. 10th, 1920),

OI (July 15th, 1920),

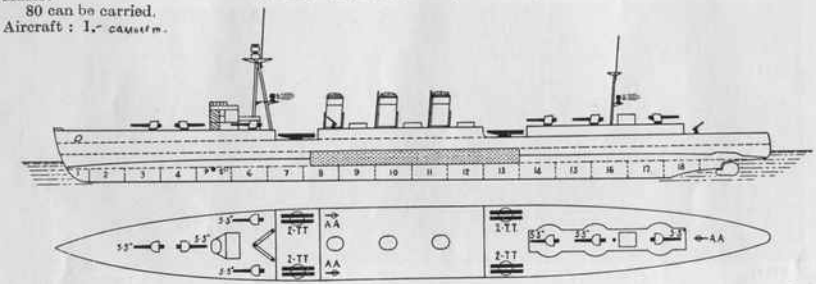
KITAKAMI (July 3rd, 1920), **KISO** (Dec. 14th, 1920).

Standard displacement, 5100 tons. Complement, 439.
Length (*p.p.*) 500 feet, (*o.a.*) 535 feet. Beam, 46¾ feet *Mean* draught, 15¾ feet.

Guns:
7—5·5 inch, 50 cal.
2—3 inch (13 pdr.), 40 cal.
2 M.G.
Torpedo tubes (21 inch):
8 *above water*.
Searchlights:
3—30 inch.
Mines:
80 can be carried.
Aircraft: 1.- catapult.

Armour (*unofficial*):
2" (H.T.) Side (amidships).....
2" C.T. .....

Note to Plan.—Apparent rake shown in plan does not exist. Foremast control tops now as in photos.

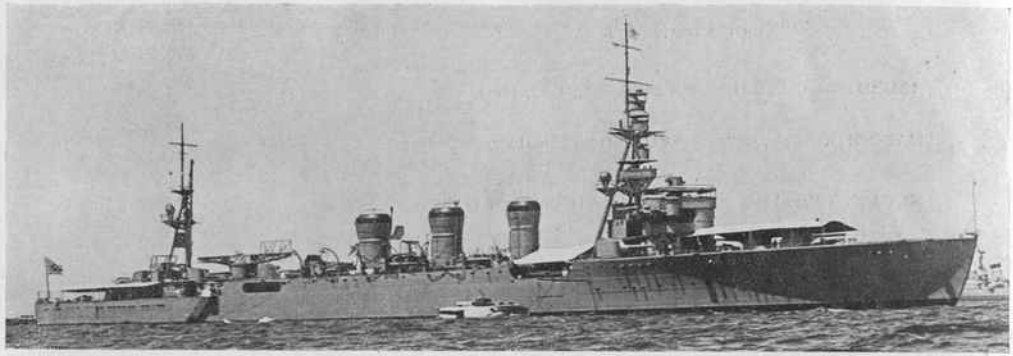


Ahead: 3—5·5 inch. Broadside: 6—5·5 inch, 4—21 inch T.T. Astern: 1—5·5 inch.

Machinery: Geared Parsons or Curtis Turbines. 4 shafts. Boilers: 12 Kanpon, 10 oil fuel, 2 mixed firing. Designed H.P. 70,000 = 33 kts. Fuel: *normal*, 350 tons; *maximum*, about 1500 tons = 8500 miles at 10 kts.

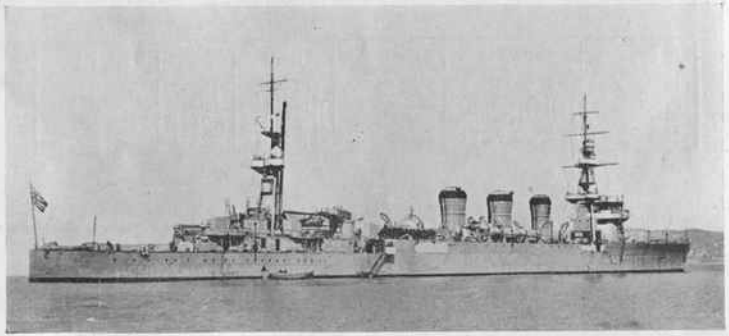
Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*First Trials.*	*Boilers.*
Oi	Kawasaki	Kawasaki	24/11/19	3/10/21		
Kitakami	Saseho	Kawasaki	1/9/19	15/4/21		
Kiso	Mitubisi / Nagasaki	Mitubisi	10/6/19	4/5/21	—34	All 12 Kanpon.
Kuma	Saseho	Kawasaki	29/8/18	31/8/20		
Tama	Mitubisi / Nagasaki	Mitubisi	10/8/18	29/1/21		

General Notes.—*Kuma* and *Tama* begun under the 1917 Naval Programme; *Oi*, *Kitakami*, *Kiso* under 1918 Programme. Completion of *Oi* delayed by failure of one of her engines when she was running trials at end of Dec., 1920. Said to be very efficiently sub-divided and the general scheme of protection has been developed since the war. Fuel supply is somewhere above the average = 6,000 miles at 15 kts., and between 1,000 and 1,100 miles at full speed. No official data published concerning trials, but are reported to have averaged about 64,500 H.P. and about 33 kts. Cost about £1,000,000 each. An aeroplane was added to the equipment of these ships in 1927.

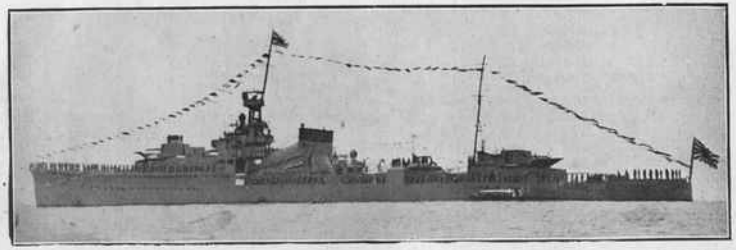


KUMA (fitted with anti-flare tops to funnels). 1935 *Official.*

KISO. 1938, *B. R. Goodfellow, Esq.*



KUMA 1937



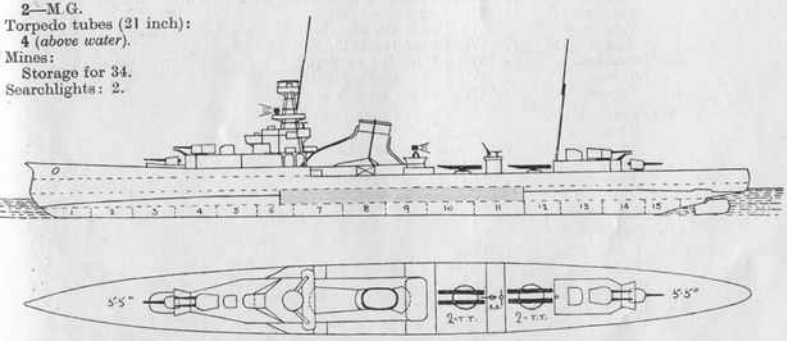
1928 *Photo.*

YUBARI (5th March, 1923).

Standard displacement, 2890 tons. Complement, 328.
Length (*p.p.*), 435 feet. Beam, 39½ feet. Draught, 11 feet 9 ins.

Guns:
6—5·5 inch, 50 cal.
1—3 inch AA.
2—M.G.
Torpedo tubes (21 inch):
4 (*above water*).
Mines:
Storage for 34.
Searchlights: 2.

Armour (unofficial):
2″ side (H.T.)

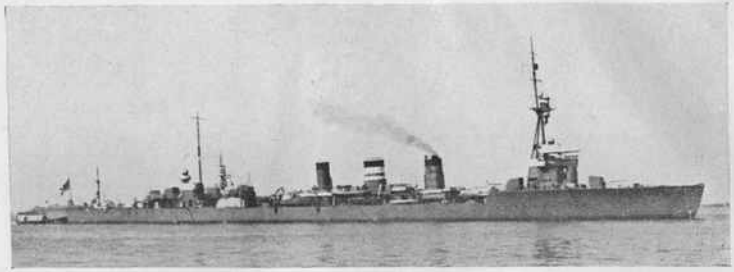


Machinery: Geared Turbines. 3 shafts. Boilers: 8 Kanpon (coal and oil-burning). Designed S.H.P.: 57,000=33 kts. Fuel: 820 tons.

Note.—Laid down on 5th June, 1922, at Sasebo Dockyard. Completed July 31, 1939. Under refit, 1940.

Torpedo Notes.—Tubes are arranged so that they can be trained on either broadside.

Engineering Notes.—Machinery was built by Sasebo Dockyard.



TENRYU. 1939.

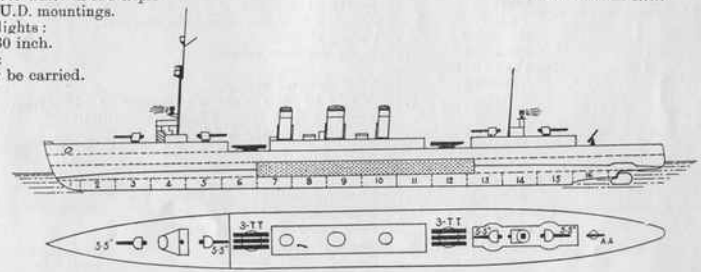
(1916 Programme)
(TENRYU CLASS—2 SHIPS.)

TATUTA (29th May, 1918) TENRYU (11th Mar., 1918)

Standard displacement, 3230 tons. Complement, 332.
Length (*o.a.*) 468 feet (*p.p.*), 440 feet. Beam: 40¾ feet. *Mean* draught: 13 feet.

Guns:
4—5·5 inch, 50 cal.
1—3 inch (13 pdr.) 40 cal. AA.
2 M.G.
Torpedo tubes: (21 in.)
6 *above water* in two triple U.D. mountings.
Searchlights:
2—30 inch.
Mines:
May be carried.

Armour (unofficial):
2″ or 1½″ (H.T.) Side amidships .....
—″ Deck (H.T.) at ends .....
—″ C.T. .....



Machinery: Curtis and Parsons turbines, respectively. 3 shafts. Boilers: 10 Kanpon. Designed H.P.: 51,000 = 31 kts. Fuel: Coal and oil, 900 tons = 6,000 miles at 10 kts. (unofficial).

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*
Tatuta	Sasebo	Kawasaki	24/7/17	31 Mar.,'19	51,000 = 33 kts.
Tenryu	Yokosuka	Mitubisi	17/5/17	20 Nov., '19	

Meanings of names of Destroyers and Torpedo Boats. (Supplied officially to "Fighting Ships.")

N.B.—Many of these names are poetical in conception; and where adequate translation is not possible the English version should be taken merely as an approximate indication of the meaning of the names.

KAGERO *class.* — 1ST CLASS.

Siranui	Phosphorescent foam (literally, "Unknown fires")
Kagero	Gossamer.
Kurosio	Black tide.
Oyasio	Parent tide.
Hatukaze	Early breeze.
Hayasio	Fast running tide.
Yukikaze	Snowstorm.
Natusio	Summer tide.
Isokaze	Shore breeze.
Urakaze	Wind in the bay.
Tokitukaze	Fair wind.
Amatukaze	Divine wind.
Arasi	Gale.
Nowake	Strong wind of autumn (literally, "Separator of fields".)
Tanikaze	

ASASIO *class.*

Asasio	Morning tide.
Arasio	Rough tide.
Osio	High tide.
Mitisio	Tide running full.
Asagumo	White clouds of the morning.
Yamagumo	White clouds on the hillsides.
Minegumo	White clouds on the mountain peak.
Natugumo	White clouds of summer.
Kasumi	Haze (literally, "Mist of flowers").
Arare	Hail

SIGURE *class.*

Yamakaze	Wind from the hills.
Suzukaze	Cool breeze of summer.
Kawakaze	Wind on the river.
Umikaze	Sea breeze.
Siratuyu	White dew.
Sigure	Autumn shower.
Murasame	Scattered showers.
Yudati	Evening thunder shower in summer.
Harusame	Spring shower.
Samidare	Early summer rain.

HATUHARU *class.*

Hatuharu	First days of spring.
Nenohi	A day of New Year celebrations in old Japan.
Wakaba	Fresh verdure (young leaves shooting).
Hatusimo	First frost of the season.
Ariake	Dawn (still the moon remains in the sky).
Yugure	Evening.

HUBUKI *class.*

Hubuki	Blizzard (snowstorm).
Sirayuki	White snow.
Hatuyuki	First snow of the season.
Murakumo	Cloud clusters.
Sinonome	Dawn.
Usugumo	Fleecy clouds.
Sirakumo	White clouds.
Isonami	Waves on the beach.
Uranami	Waves in the bay.
Ayanami	Waves whose beauty suggests figures woven in silk.
Sikinami	Waves chasing one another.
Asagiri	Morning mist.
Yugiri	Evening mist.
Amagiri	Mist in the sky.
Sagiri	Mist.
Oboro	Haziness diffusing moonlight.
Akebono	Daybreak.
Sazanami	Ripples.
Usio	Tide.
Akatuki	Dawn.
Hibiki	Echo.
Ikaduti	Thunder.
Inaduma	Lightning.

MUTUKI *class*

Mutuki, Kisaragi, Yayoi, Uduki, Satuki, Minaduki, Humiduki, Nagatuki, Kikuduki. These are poetical names for January, February, March, April, May, June, July, and September (two examples), respectively.

Mikaduki	New moon.
Motiduki	Full moon.
Yuduki	Evening moon.

KAMIKAZE *and* MINEKAZE *classes.*

Kamikaze	Divine wind.
Asakaze	Morning breeze.
Harukaze	Spring breeze.
Matukaze	Wind among the pine trees.
Hatakaze	Wind which causes the flapping of a flag.
Oite	Fair wind (i.e., favourable wind).
Hayate	Squall.
Asanagi	Morning calm.
Yunagi	Evening calm.
Akikaze	Autumn wind.
Yukaze	Evening breeze.
Hokaze	Wind on the sail.
Siokaze	Wind springing up at the turn of the tide.
Tatikaze	Wind caused by the stroke of a sword.
Namikaze	Wind on the waves.
Numakaze	Wind over the marsh.
Nokaze	Wind over the field.
Sawakaze	Wind from the swamp.
Hakaze	Wind of a bird's flight.
Yakaze	Wind of an arrow's flight.

WAKATAKE *class.* — 2ND CLASS.

Wakatake	Young bamboo.
Kuretake	Certain variety of bamboo.
Sanae	Rice seedling.
Asagao	Morning glory.
Huyo	A species of rose.
Karukaya	Sage.

KURI *class.*

Kuri	Chestnut.
Tuga	Japanese hemlock-spruce.
Hasu	Lotus.

TIDORI *class.* — TORPEDO BOATS

Tidori	Dotterel plover.
Manaduru	White-naped crane.
Tomoduru	Flight of cranes.
Hatukari	First wild goose of the season.
Oturi	Japanese stork.
Hiyodori	Brown-eared bulbul.
Hayabusa	Peregrine falcon.
Kasasagi	Magpie
Kizi	Pheasant
Kari	Wild goose.
Sagi	Snowy heron.
Hati	Dove.

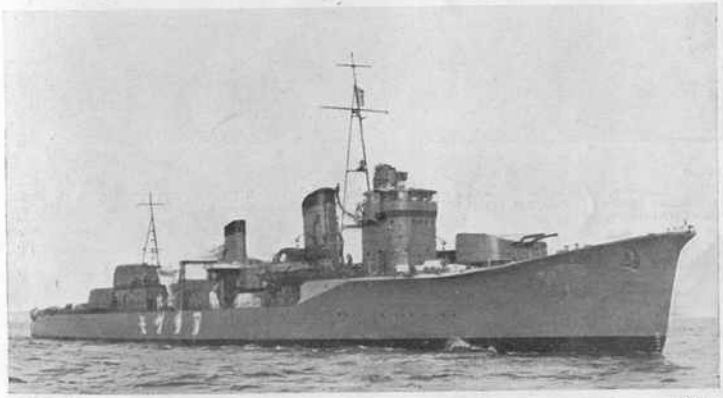
14 (*or more*) Kagero class.

Building or completing.
Will have 2 funnels and 2 light tripod masts.

Kagero, Siranui, Kurosio, Oyasio, Hatukaze, Natusio, Yukikaze, Isokaze, Hayasio, Amatukaze, Tokitukaze, Urakaze, Arasi, Nowake, Tanikaze and probably others (numbers uncertain).
Displacement: 2,000 tons. Dimensions: 364 × 35 × 11 feet.
Guns: 6—5 inch, 2 M.G. Torpedo tubes: 8—21 inch.
Machinery: Geared turbines. 2 shafts. S.H.P.: 45,000 = 36 kts. Boilers: 3 Kanpon.

Name.	*Builder.*	*Laid down.*	*Launch.*	*Completed.*
Kagero	Maiduru	Sept. 3, 1937	Sept. 27, 1938	Nov. 6, 1939
Siranui	Uraga	Aug. 30, 1937	June 28, 1938	Dec. 20, 1939
Kurosio	Hudinagata	Aug. 31, 1937	Oct. 25, 1938	Jan. 27, 1940
Oyasio	Maiduru	1938	Nov. 29, 1938	1940
Hatukaze	Kawasaki	Dec. 3, 1937	Jan. 24, 1939	Feb. 15, 1940
Natusio	Hudinagata	1938	Feb. 23, 1939	1940
Hayasio	Uraga	1938	April 19, 1939	1940
Yukikaze	Saseho	Aug. 2, 1938	March 24, 1939	Jan. 20, 1940
Isokaze	Saseho	1938	June 19, 1939	1940
Tokitukaze	Uraza	1938	Nov. 10, 1939	1940
Amatukaze	Maiduru	1938	Oct. 19, 1939	1940
Urakaze	Hudinagata	1939	April 10, 1940	
Arasi	Maiduru	1939	April 22, 1940	
Nowake	Maiduru	1939	Sept. 17, 1940	
Tanikaze	Hudinagata	1939	Nov. 1, 1940	

10 Asasio class.

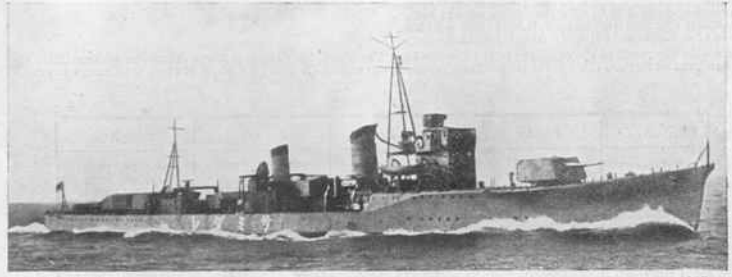


ASAGUMO. 1938.

Asasio, Arasio, Osio, Mitisio, Asagumo, Yamagumo, Minegumo, Natugumo, Kasumi, Arare.
Displacement: 1,500 tons. Complement: 190.
Dimensions: 356 × 33½ × 9 feet.
Guns: 6—5 inch, 2 M.G. Torpedo Tubes: 8—21 inch.
Machinery: Geared turbines. 2 shafts.
S.H.P.: 38,000 = 34 kts.
Boilers: 3 Kanpon. Oil fuel: About 400 tons.

10 Sigure class.

KAWAKAZE. 1937.



SAMIDARE. 1937.

Sigure, Siratuyu, Murasame, Yudati, Harusame, Samidare, Yamakaze, Suzukaze, Kawakaze, Umikaze.
Displacement: 1,368 tons. Complement: 180.
Dimensions: 335¼ × 31½ × 9½ feet (*mean*).
Guns: 5—5 inch 2 M.G. Torpedo tubes: 8—21 inch (quadrupled).
Machinery: Geared turbines. S.H.P.: 37,000 = 34 kts.
Boilers: 3 Kanpon. Oil fuel: About 400 tons.
Notes.—It is reported that the guns of these and later destroyers have nearly 90° elevation, so they may be regarded as "dual purpose" guns.

6 Hatuharu class.

HATUSIMO. (Plan as *Sigure* class, but 6 T.T. in triple mounts). 1937.

Ariake, Nenohi, Hatuharu, Hatusimo, Wakaba, Yugure.

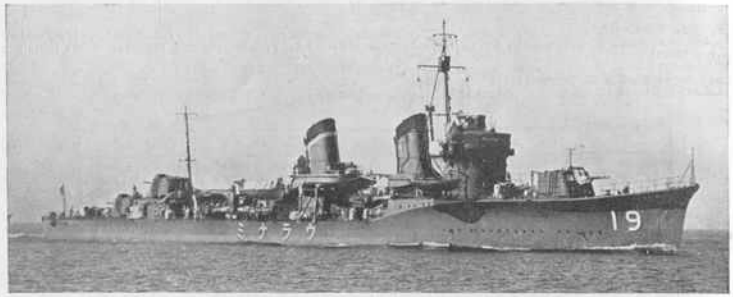
Displacement: 1,368 tons *standard*. Complement, 180.
Dimensions: 337½ × 32½ × 8½ feet (*mean* draught).
Guns: 5—5 inch, 2 M.G. Torpedo tubes: 6—21 inch.
Machinery: Geared turbines. S.H.P. 37,000 = 34 kts.
Boilers: 3 Kanpon. Oil fuel: About 400 tons.

Notes.—As the result of the capsizing of the torpedo boat *Tomoduru*, the design of these destroyers was modified, the number of torpedo tubes being reduced and forward guns paired. A high percentage of electric welding was used.

Name	*Builder*	*Laid down*	*Launch*	*Completed*
Hatuharu	Saseho	May 14, 1931	Feb. 27, 1933	Sept. 30, 1933
Nenohi	Uraga	Dec. 15, 1931	Dec. 22, 1932	Sept. 30, 1933
Wakaba	Saseho	Dec. 12, 1931	Mar. 18, 1934	Oct. 31, 1934
Hatusimo	Uraga	Jan. 31, 1933	Nov. 4, 1933	Sept. 27, 1934
Ariake	Kawasaki	Jan. 14, 1933	Sept. 23, 1934	Mar. 25, 1935
Yugure	Maiduru	April 9, 1933	May 6, 1934	Mar. 30, 1935
Siratuyu	Saseho	Nov. 14, 1933	April 5, 1935	Aug. 20, 1936
Sigure	Uraga	Dec. 9, 1933	May 18, 1935	Sept. 7, 1936
Murasame	Hudinagata	Feb. 1, 1934	June 20, 1935	Jan. 7, 1937
Yudati	Saseho	Oct. 16, 1934	June 21, 1936	Jan. 7, 1937
Harusame	Maiduru	Feb. 3, 1935	Sept. 21, 1935	Aug. 26,1937
Samidare	Uraga	Dec. 19, 1934	July 6, 1935	Jan. 29, 1937
Yamakaze	Uraga	May 25, 1935	Feb. 21, 1936	July 30, 1937
Suzukaze	Uraga	July 9, 1935	Mar. 11, 1937	Aug. 31, 1937
Kawakaze	Hudinagata	April 25, 1935	Nov. 1, 1936	April 30, 1937
Umikaze	Maiduru	May 4, 1935	Nov. 27, 1936	May 31, 1937
Asasio	Saseho	Sept. 7, 1935	Dec. 16, 1936	Aug. 31, 1937
Arasio	Kawasaki	Oct. 1, 1935	May 26, 1937	Dec. 20, 1937
Osio	Maiduru	Aug. 5, 1936	April 19, 1937	Oct. 31, 1937
Mitisio	Hudinagata	Nov. 5, 1935	Mar. 15, 1937	Oct. 31, 1937
Asagumo	Kawasaki	Dec. 23, 1936	Nov. 5, 1937	Mar. 31, 1938
Yamagumo	Hudinagata	Nov. 4, 1936	July 24, 1937	Jan. 15, 1938
Minegumo	Hudinagata	Mar. 22, 1936	Nov. 4, 1937	April 30, 1938
Natugumo	Saseho	July 1, 1936	May 26, 1937	Feb. 10, 1938
Kasumi	Uraga	Dec. 1, 1936	Nov. 18, 1937	June 28, 1938
Arare	Maiduru	Mar. 5, 1937	Nov. 16, 1937	April 15, 1938

23 Hubuki Class.

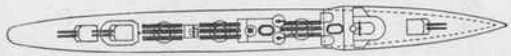
(A) "Amagiri" type. 11 Vessels.



URANAMI. 1933 *Photo.*

ASAGIRI. 1933 *Photo.*

(AMAGIRI, AKEBONO, AYANAMI, OBORO, SAGIRI, SAZANAMI, SIKINAMI, USIO, YUGIRI similar, with collar ventilators around funnels, and bridge control tower level with funnel caps, which in all this class (23) are anti-flare fittings.)



Hubuki	*Uranami*	*Ayanami*	*Yugiri*	*Akatuki*
Sirayuki	*Sinonome*	*Asagiri*	*Usio*	*Hibiki*
Hatuyuki	*Usugumo*	*Amagiri*	*Oboro*	*Ikaduti*
Murakumo	*Sirakumo*	*Sagiri*	*Akebono*	*Inaduma*
	Isonami	*Sikinami*	*Sazanami*	

Authorised under 1926 and subsequent sections of the Fleet Replenishment Law 1700 tons (2125 tons full load).

Dimensions: 371½ × 33¾ × 9¾ feet (*mean*). Armament: 6—5 inch, 50 cal., 4 AA. M.G. and 9—21 inch tubes.

Machinery: Parsons geared turbines. Boilers: 4 Kanpon. H.P. 40,000=34 kts. Oil: 420 tons. Complement, 197.

Notes:—*Hibiki* was the first rivetless ship in the Japanese Navy. *Miyuki* (built by Uraga Co.) lost by collision in 1934.

Hubuki Class—*continued.*

(B) "Hibiki" type. 4 Vessels.

IKADUTI. 1937 (*added* 1938).

(AKATUKI, HIBIKI, INADUMA, similar with small fore funnel, high bridge, and big flat-sided shields to Torpedo Tubes.)

(C) "Sinonome" type. 8 Vessels.

SIRAKUMO (note shields to Tubes). 1932 *Photo.*

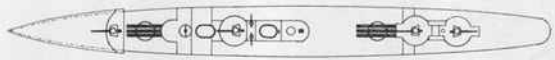
HUBUKI. 1933 *Photo.*

(HATUYUKI, ISONAMI, MURAKUMO, SINONOME, SIRAKUMO, SIRAYUKI, USUGUMO, similar with smaller bridge and cowls abreast funnels.)

Name	*Builder*	*Laid dn.*	*Launch.*	*Compl.*	*Name*	*Builder*	*Laid dn.*	*Launch.*	*Compl.*
Hubuki	Maiduru	19/6/26	15/11/27	10/8/28	*Yugiri*	Maiduru	1/4/29	12/5/30	3/12/30
Sirayuki	Yokohama	19/3/27	20/3/28	18/12/28	*Amagiri*	Isikawazima	28/11/28	27/2/30	10/11/30
Hatuyuki	Maiduru	12/4/27	29/9/27	30/3/28	*Sagiri*	Uraga	28/3/29	23/12/29	31/1/31
Murakumo	Hudinagata	25/4/27	27/9/27	10/5/28	*Oboro*	Sasebo	29/11/29	8/11/30	31/10/31
Sinonome	Sasebo	12/8/26	26/11/27	25/7/28	*Akebono*	Hudinagata	25/10/29	7/11/30	31/7/31
Usugumo	Isikawazima	21/10/26	26/12/27	26/7/28	*Sazanami*	Maiduru	21/2/30	6/6/31	19/5/32
Sirakumo	Hudinagata	27/10/26	27/12/27	28/7/28	*Usio*	Uraga	24/12/29	17/11/30	14/11/31
Isonami	Uraga	18/10/26	24/11/27	30/6/28	*Akatuki*	Sasebo	17/2/30	7/5/32	30/11/32
Uranami	Sasebo	28/4/27	29/11/28	30/6/29	*Hibiki*	Maiduru	21/2/30	16/6/32	31/3/33
Ayanami	Hudinagata	20/1/28	5/10/29	30/4/30	*Ikaduti*	Uraga	7/3/30	22/10/31	15/8/32
Sikinami	Maiduru	6/7/28	22/6/29	24/12/29	*Inaduma*	Hudinagata	7/3/30	25/2/32	15/11/32
Asagiri	Sasebo	12/12/28	18/11/29	30/6/30					

12 Mutuki Class.

UDUKI. *Photo* 1933.



12 boats; ***Mutuki*** (ex-No. 19), (by Sasebo), ***Kisaragi*** (ex-No. 21), (by Maiduru), ***Yayoi*** (ex-No. 23), (by Uraga Dock Co.), ***Uduki*** (ex-No. 25), (by Isikawazima Co.), ***Satuki*** (ex-No. 27), (by Hudinagata Co.), ***Minatuki*** (Uraga Dock Co.), ***Humituki*** (Hudinagata Co.), ***Nagatuki*** (Isikawazima Co.), ***Kikutuki*** (Maiduru), ***Mikaduki*** (Sasebo), ***Motiduki*** (Uraga Dock Co.), ***Yuduki*** (Hudinagata Co.), (ex-Nos. 28–34). Enlarged editions of *Kamikaze*. Built under 1923, 1924 and 1925 sections of Navy Law. 1,315 tons. Dimensions: 320 (*p.p.*) × 30 × 9¼ feet (*max.* draught). Armament: 4—4·7 inch, 50 cal., 2 AA. M.G. and 6—21 inch tubes (in triple deck mountings). 3 S.L. Machinery: Parsons 2-shaft turbines, 4 Kanpon boilers. Designed H.P.: 38,500 = 34 kts. Oil: 350 tons. Endurance: 4,000 miles at 15 kts. Complement, 150.

Name.	*Begun.*	*Launch.*	*Comp.*	*Name.*	*Begun.*	*Launch.*	*Comp.*
Minatuki	24/3/25	25/5/26	22/3/27	*Mutuki*	21/5/24	23/7/25	25/3/26
Humituki	20/10/24	16/2/26	3/7/26	*Kisaragi*	3/6/24	5/6/25	21/12/25
Nagatuki	16/4/25	6/10/26	30/4/27	*Yayoi*	11/1/24	11/7/25	28/8/26
Kikutuki	15/6/25	15/5/26	20/11/26	*Uduki*	11/1/24	15/10/25	14/9/26
Mikaduki	21/8/25	12/7/26	7/5/27	*Satuki*	1/12/24	25/3/25	15/11/25
Motiduki	23/3/26	28/4/27	31/10/27				
Yuduki	27/11/26	4/3/27	25/7/27				
Kamikaze	15/12/21	25/9/22	28/12/22				
Asakaze	16/2/22	8/12/22	16/6/23	*Hayate*	11/11/22	23/3/25	21/12/25
Harukaze	16/5/22	18/12/22	31/5/23	*Asanagi*	5/3/23	21/4/24	29/12/24
Matukaze	2/12/22	30/10/23	5/4/24	*Yunagi*	17/9/23	23/4/24	24/4/25
Hatakaze	3/7/23	15/3/24	30/8/24				
Oite	16/3/23	27/11/24	30/10/25	*Hokaze*	30/11/20	12/7/21	22/12/21
				Siokaze	15/5/20	22/10/20	29/7/21
Akikaze	7/6/20	14/12/20	1/4/21	*Tatikaze*	18/8/20	31/3/21	5/12/21
Yukaze	14/12/20	28/ 5/21	24/8/21	*Nokaze*	10/4/21	1/10/21	31/3/22
Namikaze	7/11/21	24/6/22	11/11/22	*Sawakaze*	7/1/18	7/1/19	16/3/20
Numakaze	10/8/21	25/2/22	24/7/22	*Hakaze*	11/11/18	21/6/20	16/9/20
				Yakaze	15/8/18	10/4/20	19/7/20
Minekaze	20/4/18	8/2/19	29/3/20				
Okikaze	22/2/19	3/10/19	17/8/20				

9 Kamikaze Class.

ASAKAZE. 1934 *Photo.*

boats: ***Kamikaze*** (ex-No. 1) and ***Asakaze*** (ex-No. 3) (both by Mitubisi Z.K.), ***Harukaze*** (ex-No. 5), ***Matukaze*** (ex-No. 7), ***Hatakaze*** (ex-No. 9), (all three by Maiduru D.Y.), ***Oite*** (ex-No. 11), (by Uraga Dock Co.), ***Hayate*** (ex-No. 13), (by Isikawazima Co.), ***Asanagi*** (ex-No. 15), (by Hudinagata Co.), ***Yunagi*** (ex-No. 17), (by Sasebo).

Built under 1922 and 1923 Sections of Navy Law. 1270 tons. Dimensions: 320 (*p.p.*) × 30 × 9$\frac{7}{12}$ feet (*max. draught*). Armament: **4**—4·7 inch, 50 cal., **2** AA. M.G. and **6**—21 inch torpedo tubes. 2 S.L. Machinery: Parsons 4-shaft turbines. 4 Kanpon boilers. Designed H.P. 38,500 = 34 kts. Oil: 350 tons. Endurance: 4000 miles at 15 kts. Complement, 148.

13 Akikaze class.

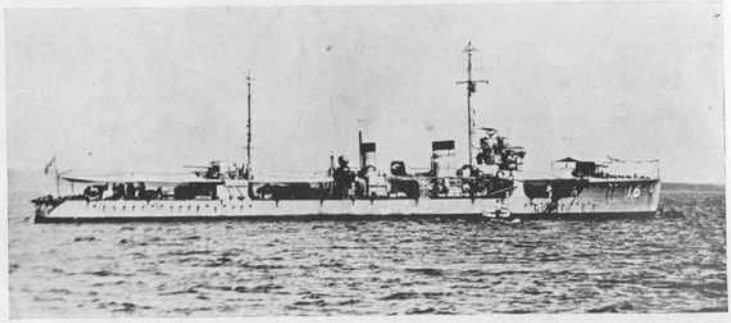
NUMAKAZE (NAMIKAZE and NOKAZE similar). 1937.

13 *Akikaze* class: ***Akikaze*** and ***Yukaze*** (both by Mitubisi Z.K., Nagasaki); ***Minekaze, Okikaze, Hokaze, Siokaze, Tatikaze, Namikaze, Numakaze, Nokaze.*** All by Maiduru. ***Sawakaze, Hakaze*** and ***Yakaze*** all built by Mitubisi Co., at Nagasaki. Displacement: 1215 tons. Dimensions: 320 (*p.p.*), 336$\frac{1}{2}$ (*o.a.*) × 29$\frac{1}{2}$ × 9$\frac{1}{4}$ feet (*mean* draught). Armament: **4**—4·7 inch, 45 cal., **2** M.G. (AA.), and **6**—21 inch torpedo tubes. 2—30 inch searchlights in Maiduru built vessels: only 1 in others. Designed S.H.P.: 38,500 = 34 kts. Machinery: Parsons 4 shaft turbines and 4 Kanpon boilers. Oil: 315 tons. Complement: *Sawakaze*, 145, others 148. *Sawakaze* belongs to the 1917 Programme; *Hakaze* and *Yakaze* to the 1918 Programme. Remainder authorised under 1919 and 1920 sections of the 1918–24 Navy Law.

2nd Class Destroyers. (1000 to 600 tons).

6 Wakatake Class.

KURETAKE. 1936 (*added* 1938). *B. R. Goodfellow, Esq.*



KARUKAYA. 1937.

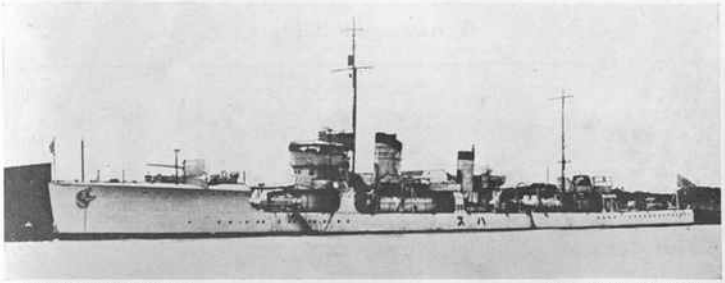
6 *Wakatake class:* ***Wakatake*** (ex-No. 2) and ***Kuretake*** (ex-No. 4), (both by Kawasaki Co., Kobe); ***Sanaye*** (ex-No. 6 by Uraga Dock Co.); ***Asagao*** (ex-No. 10) (by Isikawazima Co.); ***Huyo*** (ex-No. 16) and ***Karukaya*** (ex-No. 18), (both by Hudinagata Co.).

Built under 1921 Naval Programme. Displacement: 820 tons. Complement: 110. Dimensions: 275 × 26$\frac{1}{4}$ × 8$\frac{1}{4}$ feet. Guns: 3—4·7 inch, 45 cal., **2** M.G. Tubes: **4**—21 inch (paired). Machinery: Parsons geared turbines. 2 shafts. S.H.P. 21,500 = 31·5 kts. 3 Kanpon boilers. Oil: 275 tons.

All originally bore numbers only. Names were conferred on August 1st, 1928. *Sawarabi* lost off Formosa, Dec. 5, 1932, and *Yugao* removed from list in 1940.

Name.	*Begun.*	*Launch.*	*Comp.*	*Name.*	*Begun.*	*Launch.*	*Comp.*
Wakatake	13/12/21	24/7/22	30/ 9/22	*Huyo*	16/2/22	23/9/22	16/3/23
Kuretake	15/3/22	21/10/22	21/12/22	*Karukaya*	16/5/22	19/3/23	20/8/23
Sanaye	5/4/22	15/2/23	5/11/23				
Asagao	14/3/22	4/11/22	10/5/23				

3 Kuri Class



HASU (Observe forefunnel). 1936, *Official, added* 1937.

TUGA (painted white). 1936, *Official, added* 1937.

3 *Kuri* class: ***Kuri*** (Kure), ***Hasu*** (Uraga Dock Co.), ***Tuga*** (Isikawazima Co.). Displacement: 770 tons. Dimensions: 275 (*pp.*) × 26 × 8 feet. Armament: 3—4·7 inch, 45 cal., 2 M.G. (AA.). 4—21 inch torpedo tubes in two twin-deck mountings. 1—30 inch searchlight (*Hasu* has 2). Designed S.H.P.: 17,500 = 31·5 kts., *except Hasu*, 21,500 = 31·5 kts. Machinery: Parsons direct drive turbines. 3 Kanpon boilers. 2 shafts. Oil: 275 tons. Endurance: 3,000 miles at 15 kts. Complement: 110. Built under 1918–19 and 1920 Programmes.

Notes.—*Warabi*, of this class, lost by collision, Aug. 24, 1927. *Momi* scrapped, 1932, and 16 others during 1939–40.

Name.	*Begun.*	*Launch.*	*Completed.*
Kuri	5/12/19	19/3/20	30/4/20
Tuga	5/3/19	17/4/20	20/7/20
Hasu	2/3/21	8/12/21	31/7/22

12 Torpedo Boats.

SAGI 1938.

8 *Otori* class: ***Otori, Hiyodori, Hayabusa, Kasasagi, Kizi, Kari, Sagi, Hato.*** Displacement: 595 tons *standard*. Dimensions: 263 × 26 × 6½ feet. Guns: 3—4·7 inch, 1 M.G. Torpedo tubes: 3—21 inch. 1 S.L. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 9,000 = 28 kts. Boilers: Kanpon. Oil fuel.

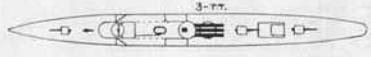
Notes.—Authorised by 2nd Fleet Replenishment Law, 1933. Design modified in consequence of capsizing of *Tomoaruru*.

HATUKARI 1935.

4 *Tidori* class: ***Tidori, Tomoduru, Hatukari, Manaduru.*** Displacement: 527 tons. Dimensions: 254 × 24 × 6 feet. Guns: 3—4·7 inch, 1 M.G. Tubes: 2—21 inch. Machinery: Parsons geared turbines. H.P.: 7,000 = 26 kts. Boilers: Kanpon. Oil fuel.

Notes.—Built under 1931 Programme. After the capsizing of *Tomoduru* in March, 1934, these vessels were altered extensively to improve stability, armaments being reduced to lessen top weight.

Name.	*Builders.*	*Begun.*	*Launch.*	*Completed.*
Tidori	Maiduru	13/10/31	1/4/33	20/11/33
Manaduru	Hudinagata	22/12/31	11/7/33	31/11/34
Tomoduru	Malduru	11/11/32	1/10/33	24/2/34
Hatukari	Hudinagata	6/4/33	19/12/33	15/7/34
Otori	Maiduru	8/11/34	25/4/35	10/10/36
Hiyodori	Isikawazima	26/11/34	25/10/35	20/12/36
Hayabusa	Yokohama Dock	19/12/34	28/10/35	7/12/36
Kasasagi	Osaka Iron Wks.	4/3/35	28/11/35	15/1/37
Kizi	Mitui (Tama)	24/10/35	26/1/37	31/7/37
Kari	Yokohama Dock	11/5/36	20/1/37	20/9/37
Sagi	Harima	20/5/36	30/1/37	31/7/37
Hato	Isikawazima	28/5/36	25/1/37	7/8/37



OTORI class (*Tidori* similar, but only 2 tubes).

Submarines (*Sensuikan*).

Now divided into 4 groups, Oceangoing, Seagoing, Coastal and Minelaying.

(*a*) *Oceangoing*

5 "I 16" Class.

I 16—20. Displacement: 2,180 tons. Dimensions: 348 × 30 × 16 feet. Guns: 1—5·5 inch, 2 M.G. AA. Tubes: 8—21 inch. 2 sets Diesels. B.H.P.: 9,000 = 20 kts. *I* 16 was laid down at Kure on Sept. 15, 1937, launched July, 28, 1938, and completed March 30, 1940. *I* 18 was launched at Saseho on Nov. 12, 1938, and another (number not reported) at Yokosuka on July 19, 1939. These are the biggest submarines ever built in Japan.

10 "Improved I 5" Type.

I 8. *Added* 1940.

1 *boat:* ***I 6*** (Kawasaki, March 31, 1934). Displacement: 1,900/2,500 tons. Dimensions: 309½ (*pp.*), 343½ (*o.a.*) × 29¾ × 15½ feet. Guns: 1—5 inch, 2 M.G. A.A. Tubes: 6—21 inch. 2 sets Diesels. H.P.: 6,000=17 kts. *surface*. *Submerged*, 9 kts. Completed 1935,

boats: ***I 7*** (Kure, July 3, 1935), ***I 8*** (Kawasaki, July 20, 1936). Displacement: 1,950/2,600 tons. Dimensions; 343½ (*pp.*), 356¾ (*o.a.*) × 29¾ × 14½ feet (*mean* draught). Guns: 2—5·5 inch, 2 M.G. AA. Tubes: 6—21 inch, 1 S.L. 2 sets Kanpon Diesels. H.P.: 6,000 = 17 kts., *surface*. *Submerged*, 9 kts.

9—15. No official particulars of these vessels are available, but it is thought probable that they are generally similar to *I* 7 and *I* 8, described above.

Note.—***I 7, I 8,*** were laid down Sept. 12 and Oct. 1, 1934, respectively. *I* 7 completed March 31, 1937, *I* 8 on Dec. 5, 1938.

1 Experimental Boat.

I 5 (Number on bow is that of flotilla). 1939.

I 5. (Kawasaki, June 19th, 1931). Displacement: 1,955/2,500 tons. Dimensions: 320 × 30½ × 15½ feet. Guns: 1—5 inch., 2 M.G. A.A. Tubes: 6—21 inch. Machinery: Diesels, 6,000 H.P. = 17 kts. *surface*. Motors H.P. 1,800 = 9 kts.

Note.—Differs mainly from *I* 1—4 in calibre of gun and in having a seaplane with folding wings housed in a hangar in two tubular sections on either side of superstructure abaft C.T., instead of a second gun. Fuselage, floats and engine are stowed in one section, wings in the other. (It is possible that this experimental equipment has since been removed). Laid down Oct. 30, 1929, and completed July 31, 1932.

4 Kawasaki Boats.

I 1. 1926 *Photo, by courtesy of Navy Department.*

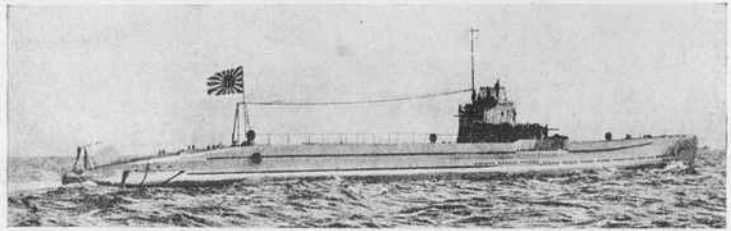
4 *boats:* ***I 1*** (*ex*-No. 74, Oct., 1924), ***I 2*** (*ex*-No. 75, Feb. 23., 1925), ***I 3*** (*ex*-No. 76, June 8, 1925), ***I 4*** (May 22, 1928). All by Kawasaki, Kobe. Displacement: 1,955/2,480 tons. Dimensions: 320 × 30½ × 15½ feet. Guns: 2—5·5 inch, 2 M.G. A.A. Tubes: 6—21 inch. Machinery: Diesels, H.P. 6,000 = 17 kts. *surface*. Motors H.P. 1,800 = 9 kts. Design is based in its main features on the ex-German Submarine *O* 1 (*ex-U* 125). First three authorised by 1922 Programme, and completed 1926. *I* 1 carried out a test cruise of 2,500 miles with complete success. *I* 4, laid down at Kawasaki in April, 1926, built under direct superintendence of Naval Construction Department and completed in Dec., 1929.

(*b*) *Seagoing.*

10 Kaigun Type

21—30. Believed to be slightly enlarged versions of *I* 71 type, below. Displacement: *circa* 1,500 tons. No other particulars reported. *I* 29 was launched at Saseho on June 6, 1940.

8 Kaigun Type.



I 71. 1936, *Official.*

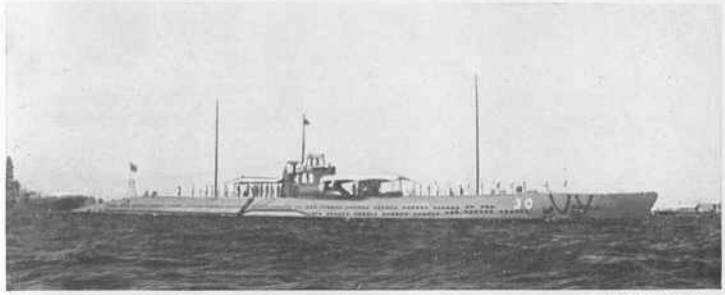
5 *boats:* ***I 71*** (Kawasaki, Aug. 25, 1934), ***I 72*** (Mitubisi, April 6, 1935) ***I 73*** (Kawasaki, June 20, 1935), ***I 74*** (Saseho, March 28, 1937), ***I 75*** (Mitubisi, Sept. 16, 1936). Displacement, dimensions, etc., as preceding group below, but armed with 1—4·7 inch gun, 6—21 inch tubes.

3 boats: ***I 68*** (Kure, June 26, 1933), ***I 69*** (Mitubisi, Kobe, Feb. 15, 1934), ***I 70*** (Saseho, June 14, 1934). *Surface* displacement: 1,400 tons. Dimensions: 331½ × 27 × 13 feet. Guns: 1—4 inch, 1 M.G. Tubes: 6—21 inch. 2 sets Diesels. H.P.: 6,000 = 20 kts., *surface*. *Submerged* 9 kts.

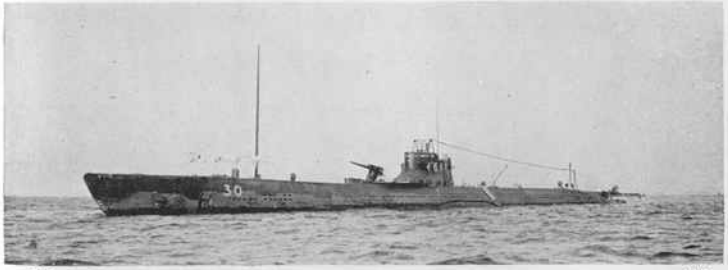
I 71 completed Dec. 24, 1935. *I* 72, *I* 73 both completed Jan. 7, 1937. *I* 74 in 1938, *I* 69, *I* 70 in 1935, and *I* 68 in 1934. All reported to have a radius of action of 16,000 miles.

Seagoing—continued.

2 Kaigun Type.



I 65. 1933 (*added* 1935).

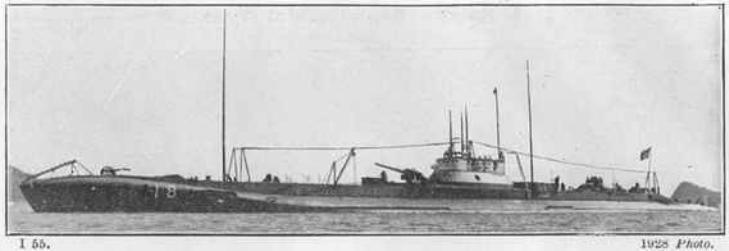


I 65. 1935.

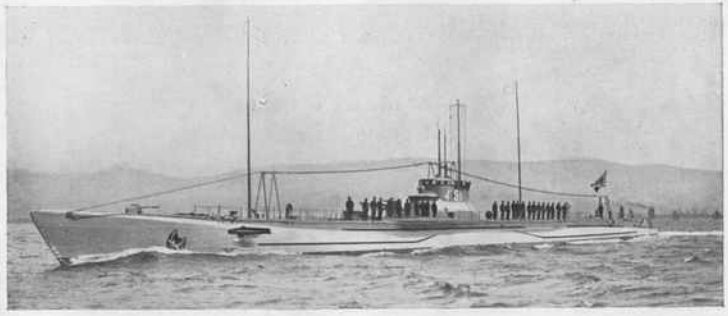
2 *boats*: I ***65*** (Kure, June 2, 1931), I ***66*** (Sasebo, June 2, 1931). Displacement : 1,638/2,100 tons. Dimensions: 321¼ × 27 × 16 feet. Guns: 1—4 inch, 1 M.G. Tubes: 6—21 inch. 2 sets Diesels. H.P. 6,000 = 19 kts. *surface.* Electric motors, H.P. 1800 = 9 kts.

Note.—I ***67*** foundered during exercises on August 29, 1940.

12 Kaigun Type.



I 55. 1928 *Photo.*



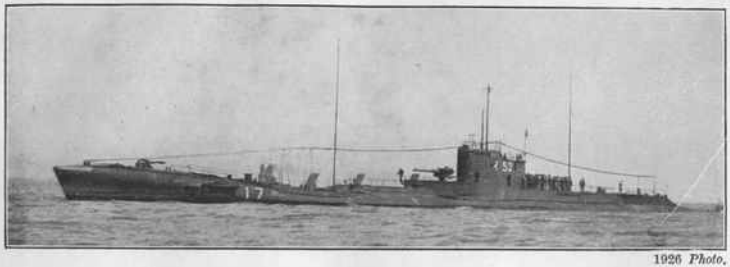
I 61. 1930 *Official.*

12 boats: I ***53*** (ex-*No.* 64, Kure, Aug. 5, 1925), I ***54*** (ex-*No.* 77, Sasebo, March 15, 1926), I ***55*** (ex-*No.* 78, Kure, Sept. 2, 1925), I ***56*** (Kure, March 23, 1928), I ***57*** (Kure, Oct. 1, 1928), I ***58*** (Yokosuka, Oct. 3, 1925), I ***59*** (Yokosuka, March 25, 1929). I ***60*** (Sasebo, April 24, 1929), I ***61*** (Mitubisi, Nov. 12, 1927), I ***62*** (Mitubisi, Nov. 29, 1928), I ***63*** (Sasebo, Sept. 28, 1927), I ***64*** (Kure, Oct. 5, 1929). Displacement : 1,635/2,100. Dimensions: 331 × 26 × 16 feet (except *I* 61, 62, 64, which are 321¼ × 25½. Armament : 1—4·7 inch, 1 M.G., 8—21 inch tubes (except *I* 61, 62, 64, which have only 6 tubes. Machinery : 2 sets Diesels. B.H.P.: 6,000 = 19 kts. Electric motors, H.P.: 1,800 = 9 kts. Believed begun under 1923–25 Programmes. Cruising radius is undoubtedly very large, 16,000 miles being reported. They are supposed to be capable of crossing the Pacific and returning without refuelling. This design is the fruit of experience gained with *I* 51 and *I* 52.

Note.—*I* 63 sunk by collision in Bungo Channel, Feb. 2, 1939, but salved a year later, and will presumably be refitted.

Seagoing—(continued)

1 Kaigun Experimental Type.

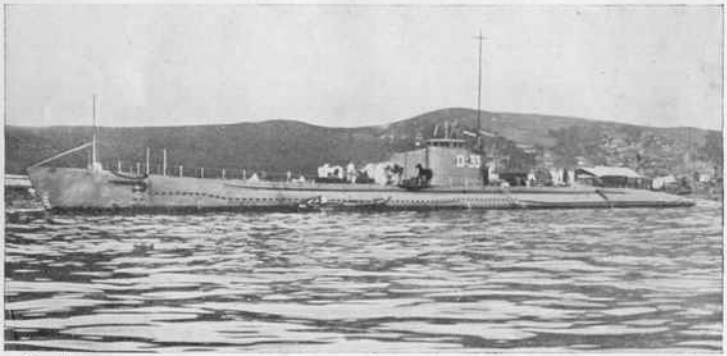


1926 *Photo.*

1 ***52*** (ex-*No.* 51, Kure, June 12, 1922). Built under 1920 Programme. Displacement: 1,390/2,000 tons. Dimensions: 331 × 25 × 17 feet. Armament: 1—4·7 inch, 1 M.G., 8—21 inch tubes. H.P.: 6,000/1,800. [Speed: 19/9 kts. Completed in May, 1925.

(c) *Coastal* from 500 to 1000 tons.

2 Kaigun type.



Ro. 33. 1937.

2 *boats*: ***Ro. 33*** (Kure, Oct. 10, 1934), ***Ro. 34*** (Mitubisi, Dec. 12, 1935). Displacement, 700/—tons. Dimensions 239½ × 22 × 12 feet. Armament: 1—3 inch AA., 4—21 inch tubes (believed all in bow). H.P.: 2,600/— = 16/9 kts.

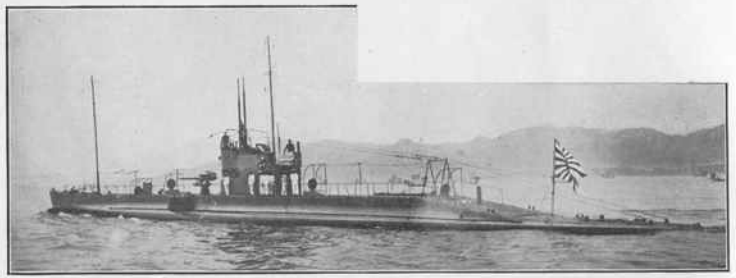
9 Mitubisi Type.

Ro. 64. *Photo added* 1926.

9 boats: ***Ro. 60*** (ex-*No.* 59), ***Ro. 61*** (ex-*No.* 72), ***Ro. 62*** (ex-*No.* 73), ***Ro. 63*** (ex-*No.* 84), ***Ro. 64—68***. All built by Mitubisi, Kobe, 1923-25. Displacement: 988/1,300 tons. Dimensions: 250 (*p.p.*) × 24 × 13 feet. Guns: 1—3 inch, 1 M.G. Torpedo tubes: 6—21 inch. Vickers Diesels H.P. 2,400 = 16 kts. Motors: 1,800 H.P. = 10 kts. Fuel: 75 tons. Complement: 48.

Notes.—Built under 1920-22 Programmes. Apparently an enlargement of the *Ro.* 51—59 type. Completed—*Ro.* 60, 1923; *Ro.* 61—63, 1924 *Ro.* 64 and 68, 1925; *Ro.* 65 and 67, 1926 *Ro.* 66, 1927.

3 Kawasaki Boats



1926 *Photo, by courtesy of Navy Department.*

3 boats: ***Ro. 30—32*** (ex-*Nos.* 69—71). (Kawasaki Co., Kobe, 1923-26). Dimensions: 243½ (*p.p.*) × 20 × 12 feet. Displacement: 655/1,000 tons. Guns: 1—4·7 inch, 1—3 pdr. Torpedo tubes: originally carried 5—21 inch, now 4—21 inch. Fiat Diesels. H.P.: 1,200/1,200 = 13/10 kts.

Notes.—Built under 1919 Programme, and completed 1923-24 *Ro.* 31. (ex-*No* 70) sank during trials at Kobe, August, 1923, but was salved and rebuilt. She was finally completed at Kure, 1927, owing to financial crisis at Kawasaki Yard. *Ro.* 30 and *Ro.* 32 both completed during 1924.

3 Mitubisi—Vickers type.

Ro. 58. (*Ro.* 57 and 59 same.) *Photo added* 1926.

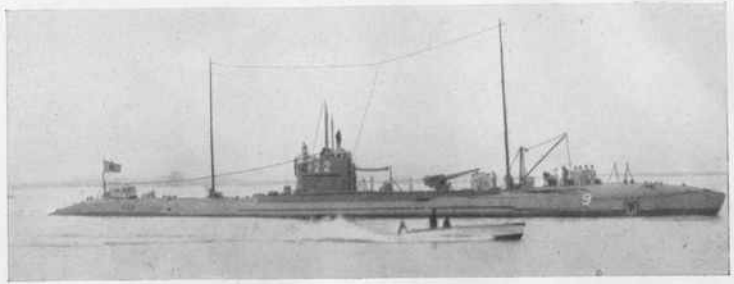
3 boats: ***Ro. 57*** (ex-*No.* 46), ***Ro. 58*** (ex-*No.* 47), ***Ro. 59*** (ex-*No.* 57). (Mitubisi, Kobe, 1919–22). Displacement 889/1,082 tons. Dimensions: 250 × 23½ × 13 feet. Guns: 1—3 inch AA. Torpedo tubes: 4—21 inch. H.P.: 2,400/1,200 = Speed 17/9 kts. Fuel: 65 tons. Complement: 48. Endurance: *About* 7,500 miles *on surface.*

Notes.—Gun mounted on extended C.T. Begun under 1917–18 and 1919 Programmes. Completed 1920–23. *Ro.* 52 scrapped April 1932. *Ro.* 51, 53, 54, 55, 56 since discarded.

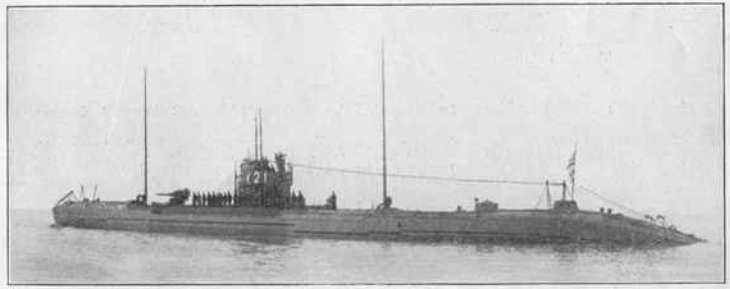
(*d*) *Minelaying.*

Note.—A large unidentified submarine bearing the number *I* 128 has been sighted at sea. It is possible, therefore, that four more minelaying submarines numbered *I* 125—128 have been built.

4 Kawasaki Boats



I 122. 1930 *Photo.*



I 121. 1927 *Photo, by courtesy of Navy Dept.*

4 boats: ***I 121*** (ex-*I* 21, ex-48) (March 30, 1926), ***I 122*** (ex-*I* 22, ex-49) (Nov. 8, 1926), ***I 123*** (ex-*I* 23, ex-50) (March 19, 1927), ***I 124*** (ex-*I* 24) (Dec. 12, 1927), all by Kawasaki Co., Kobe, the first probably laid down under 1919 Programme. Displacement: 1,142/1,470 tons. Dimensions: 279½ × 24¾ × 14¼ feet. Armament: 1—5·5 inch, 4—21 inch tubes, 42 mines. Machinery: Diesels, H.P.: 2,400 = 14 kts. Electric motors, H.P.: 1,200 = 9·5 kts. *I* 122, *I* 123 completed at Kure, owing to temporary suspension of business by Kawasaki Co. Construction of *I* 124 completed at Kawasaki by Naval Construction Dept. Design believed to be based on German *U B* types.

Seagoing Training Ships.

KATORI. 1940, *Official.*

KASIMA (October 2, 1939), **KATORI** (June 17, 1939).

Displacement : 5,800 tons. Complement :

Length : 425 feet. Beam : 52 feet. Draught : 18 feet (*mean*).

Guns :
4—5·5 inch.
2—5 inch AA.
— M.G.

Torpedo Tubes :
8—21 inch.

Armour :
3" Deck.
(*unofficial*).

Machinery : Geared turbines. 2 shafts. S.H.P. : 8,000 = 18 kts. Boilers : 3 Kanpon.

Notes.—Both ships built at Mitubisi yard in Yokohama and rated officially as " Training Cruisers ". Are probably fitted for minelaying. *Katori* laid down Aug. 24, 1938, and completed April 20, 1940. *Kasma* has also been reported as launched Sept. 25, 1940, but this is more likely to be date of completion. Speed is too low for these ships to be reckoned as effective cruisers. Cruiser *Oi* and coast defence ships *Kazuga, Iwate* and *Yakuma* have been used as seagoing training ships.

Minelayers First Class (over 1,000 tons). (*Husetukan*).

1937.

OKINOSIMA (Harima S.B. Co., Nov. 15, 1935.) *Standard* displacement : 4,400 tons. Dimensions : 386½ × 51½ × 16½ feet (*mean*). Guns : 4—5·5 inch, 4 M.G. Geared turbines. S.H.P : 9,000 = 20 kts. 4 Kanpon boilers.

Note.—Laid down Sept. 27, 1934, and completed Sept. 30, 1936. Name is that of an island off which the Battle of the Japan Sea was fought in May, 1905.

YAEYAMA (Now painted white). 1933 *Photo, Official.*

YAEYAMA (Kure, October 15, 1931). *Standard* displacement : 1,135 tons. Complement : 150. Dimensions : 280½ × 34½ × 8 feet. Guns : 2—4·7 inch AA., 2 M.G. Machinery : 2 sets triple expansion. H.P. : 4,800 = 20 kts. 2 Kanpon boilers. Fuel : Mixed firing.

Note.—Is also fitted for laying anti-submarine nets. Laid down Aug. 2, 1930, and completed Aug. 31, 1932.

ITUKUSIMA (May 22nd, 1929).

Standard displacement, 1,970 tons.

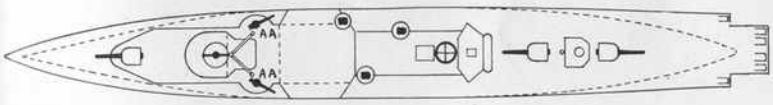
Dimensions, 328 × 42 × 10 feet. Complement, 235.

1930 *Photo.*

Guns:
3—5·5 inch, 50 cal.
2—3 inch AA.

Armour: Nil.

Mines:
250 large or 500 small.
Depth charge throwers:
1—each side amidships.



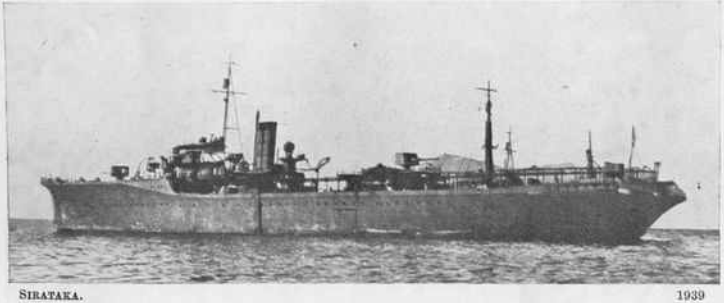
Machinery: 3 sets Diesel engines. B.H.P. 3,000 = 16 kts. 3 shafts. Radius of action is 5,000 miles at 16 kts.

General Notes.—Laid down by Uraga Co., in Feb. 1928, and completed Dec. 1929. Is the first experimental Diesel-driven ship in the Japanese Navy. Design suggested by H.M.S. *Adventure* of which she is a small edition. First searchlight shown in plan has been replaced by a 6 ft. anti-aircraft range-finder. Officers' cabins in superstructure deck under fore gun and bridge. Upper deck is for mine stowage, 4 lines of minelaying rails extending from forecastle to stern. Two outer lines start abaft of bridge and extend to the wing-ports at stern. There is a single line on the forecastle from starboard bow to gun for transport back to store of picked-up practice mines. Two sizes of mines can be carried and number stowed varies as the type—roughly twice as many of the smaller size.

1930 *Photo.*

1930 *Photo.*

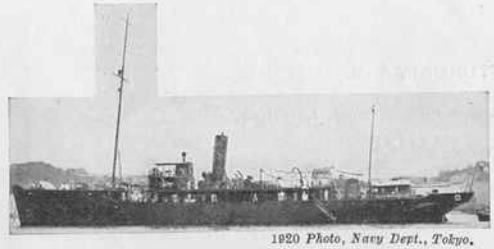
1930 *Photo.*



SIRATAKA. 1939

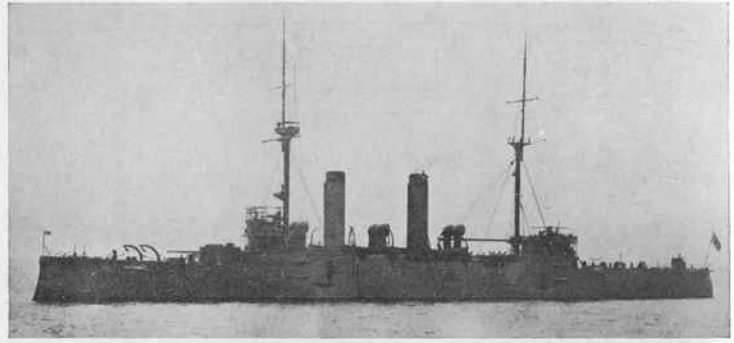
SIRATAKA (Isikawazima Co., Tokyo, 25th January, 1929). Displacement : 1,345 tons *standard* ; 1,405 tons *normal*. Dimensions : 260 × 38 × 9 feet. Guns : **3**—4·7 inch AA., **1** M.G. Machinery : 2 sets triple expansion Boilers : 2 Kanpon. H.P. 2,200 = 16 kts.

Notes.—Also fitted for anti-submarine netlaying. Was laid down on Nov. 24, 1927, and completed April 9, 1929. *Siratake* means White Hawk.



1920 *Photo, Navy Dept., Tokyo.*

KATURIKI (Kure, Oct., 1916). 1,540 tons. Dimensions : 240 × 39 × 14 feet. Guns : **3**—3 inch. Machinery : 2 sets triple expansion. H.P. : 1,800 = 13 kts. Built under 1915–16 Programme. Fitted with 4 gallows for sweeps. Reported to carry 150 mines.



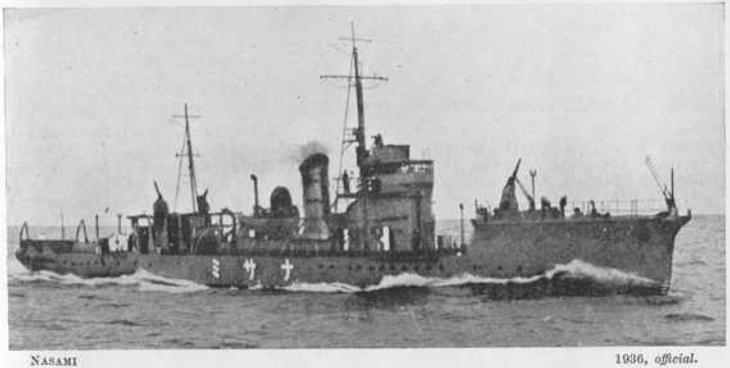
1930 *Photo.*

TOKIWA (Armstrong, July 6, 1898) 9,240 tons. Dimensions : 408 (*pp.*), 442 (*o.a.*) × 67½ × 24½ feet. Guns : **2**—8 inch, 40 cal., **8**—6 inch, 40 cal., **2**—3 inch, **1**—3 inch AA. Armour : 7″ belt, tapering to 3½″, 2″ deck, 6″ turret, 6″ casemates. Machinery : 2 sets triple expansion. Boilers : 16 Miyabara. H.P. : 18,000 = 21¼ kts. Coal : 1,400 tons. Originally a cruiser.

Note.—*Tokiwa* means Evergreen. After turret removed 1929, when she was adapted for minelaying.

Photo wanted.

SOKUTEN (Mitubisi, Yokohama, April 27, 1938), **SIRAKAMI** (Isikawazima, June 25, 1938), **NARIFU** (Mitubisi, Yokohama, Aug. 28, 1939), **SUMISU** (Tama Works, Dec. 13, 1939), **KYOSAI** (Isikawazima, June 29, 1939), **KUNAZIRI** (Turumi Steel Works, May 6, 1940), **ISAKUYI** (Isikawazima, 1939). **KASII** (Mitubisi, Yokohama, Oct. 15th, 1940). Displacement : 720 tons. Dimensions : 239 × 25¾ × 8½ feet. Guns: Probably 2—4·7 inch. Machinery : 2 sets Diesels. H.P.: 3,600=20 kts. 1 S.L. Fourth name has also been reported as *Simusu*.



NASAMI 1936, *official*.

NATUSIMA (*Saruisima* has shorter funnel, with plain top). 1934, *Official*.

NATUSIMA (Isikawazima S.B. Co., March 24, 1934).

SARUSIMA (Yokohama Dock Co., Dec. 16, 1933).

NASAMI (Harima Co., March 26, 1934).

Displacement : 443 tons. Dimensions : 225 × 24½ × 5½ feet. Guns: 2—3 inch AA., 1 M.G. Machinery : 2 sets Diesels. H.P.: 2,300 = 19 kts, except *Sarusima*, H.P.: 2,100 = 19 kts.

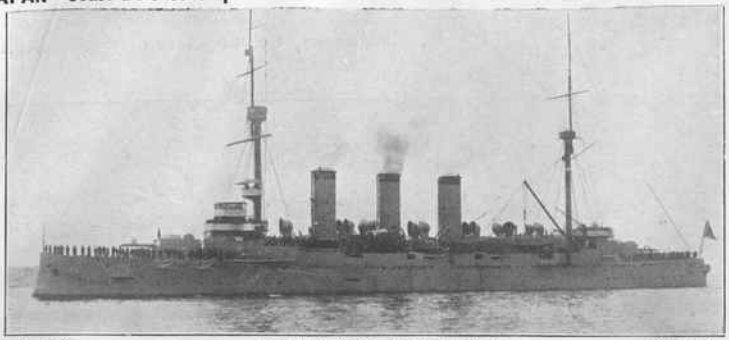
TUBAME. 1931 *Photo*.

(*Kamome* similar but 2 white bands on funnel)

TUBAME (now has 1 white band on funnel as in upper photo). 1930 *Photo, Navy Dept., Tokyo*.

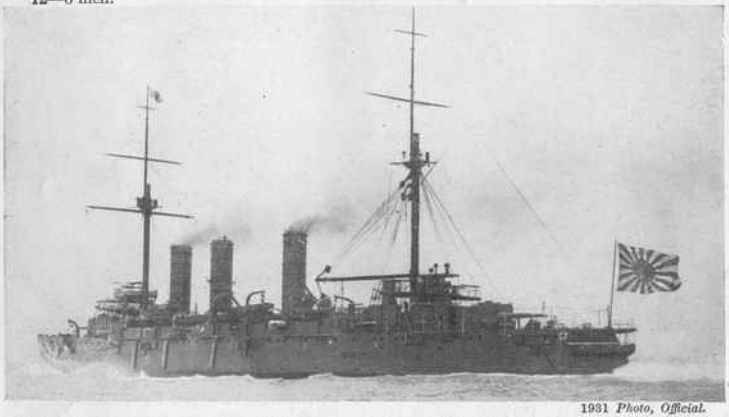
KAMOME (Osaka Ironworks, 27th April, 1929), **TUBAME** (Yokohama Dock Co., 24th April, 1929), Displacement : 450 tons *standard*, 570 tons *normal*. Dimensions : 206⅝ × 23½ × 6½ feet. Guns : 1—3 inch A.A., 1 M.G. H.P. 2,500=19 kts. Also equipped for netlaying.

Notes.—Both laid down in 1928. Meanings of names are as follows : *Kamome*—Seagull. *Tubame*—Swallow.



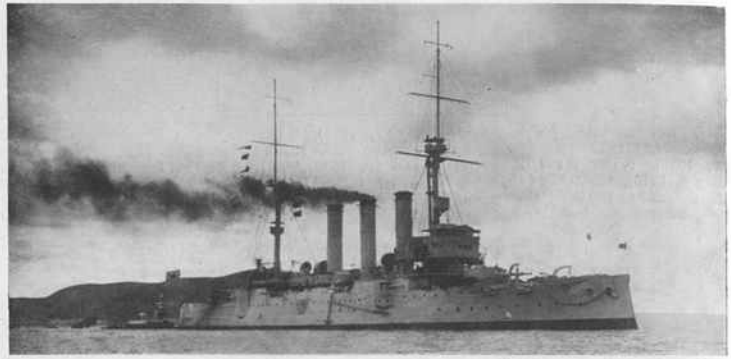
YAKUMO. (Deckhouse since added abaft foremast). 1929 *Photo.*

YAKUMO (Vulcan Co., July 8, 1899). Displacement: 9,010 tons. Complement: 698. Length: (*pp.*) 409 feet; *over all*, 434 feet. Beam: 64½ feet. *Mean* draught: 23¾ feet. Guns: **4**—8 inch, 40 cal., **8**—6 inch, 40 cal., **4**—3 inch, **4** S.L. Torpedo tubes (18 inch): **2** *submerged*. Armour (Krupp): 7″ Belt (amidships), 3½″ Belt (ends), 2½″ Deck (slopes), 6″ Turrets (N.C.), 6″ Turret bases (N.C.), 5″ Lower deck side, 6″ Casemates (8), 10″ Conning tower. (Total weight, 2,040 tons.). Machinery: 2 sets vertical triple expansion. 2 screws. Boilers: 6 Yarrow. I.H.P.: 7,000 = 16 kts. Coal: *normal*, 550 tons; *max.*, 1,200 tons. Employed as Midshipmen's Training Ship, and speed reduced. Full armament (not mounted at present) includes **12**—6 inch.



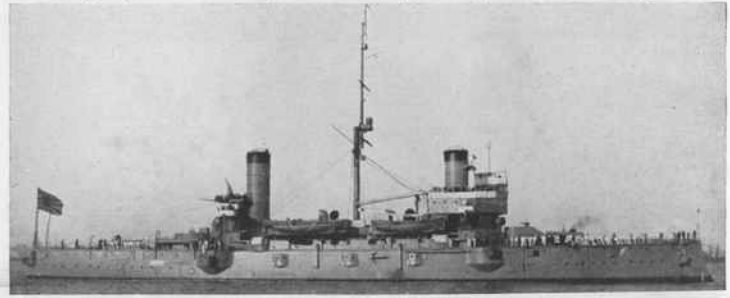
1931 *Photo, Official.*

ADUMA (St. Nazaire, June 24, 1899). Displacement: 8,640 tons. Complement: 644. Length: (*w.l.*) 430; (*o.a.*) 452½ feet. Beam: 59½ feet. *Max.* draught: 25 feet. Guns (Armstrong): **4**—8 inch, 40 cal., **8**—6 inch, 40 cal., **4**—3 inch, **1**—3 inch AA. Torpedo tubes: **4** *submerged*. Armour (Krupp mostly): 7″ Belt (amidships), 3½″ Belt (ends), 2½″ Deck (on slopes), 6″ Turrets and bases (H.N.), 6″ Casemates (H.N.), 5″ Side above belt. (Total weight, 2,000 tons.) Machinery: 2 sets vertical triple expansion. 2 screws. Boilers: 24 Belleville. Designed H.P.: 17,000 = 21 kts. Coal: *normal*, 600 tons; *maximum*, 1,200 tons. Good for about 16 kts. now.



IDUMO. 1938, *Official, courtesy of Navy Dept., Tokyo.*

IDUMO (Sept. 19, 1899), and **IWATE** (March 29, 1900). Built by Armstrong. Displacement: 9,180 tons. Complement: 658. Length (*p.p.*), 400 feet; (*o.a.*) 434 feet. Beam: 68½ feet. *Max.* draught: 24½ feet. Guns (Armstrong): **4**—8 inch, 40 cal., **8**—6 inch, 40 cal., **1**—3 inch AA., **4**—3 inch, **3** M.G., 4 S.L. Torpedo tubes: **4** *submerged*. Armour (Krupp): 7″ Belt (amidship), 3½″ Belt (ends), 2½″ Deck (slopes), 5″ Lower deck (redoubt), 6″ Turrets and bases, 6″ Casemates, 14″ Conning tower. (Total 2,100 tons.) Machinery by Humphrys & Tennant: 2 sets 4-cylinder triple expansion. 2 screws. Boilers: Belleville in *Idumo*; 6 Yarrow in *Iwate*. *Idumo*, I.H.P.: 14,700 = 20·75 kts. *Iwate*, I.H.P.: 7,000 = 16 kts. Coal: *normal* 550 tons; *maximum*, 1,400 tons. Begun at Elswick 1898–99, and completed 1900–01. *Iwate* used as seagoing Training Ship. Full armament (not mounted in peace time) includes **14**—6 inch guns.



KASUGA. *Photo* 1931.

KASUGA (October 22, 1902). Displacement: 7,080 tons. Complement: 595. Length (*waterline*): 357 feet. Beam: 61 feet 11 ins. *Maximum* draught: 25½ feet. Guns (Armstrong): **1**—10 inch, **2**—8 inch, 45 cal., **4**—6 inch, 45 cal., **4**—3 inch, **1**—3 inch AA., **2** M.G. Torpedo tubes (18 inches): 4 *above water* (in casemates). Armour (Terni): 6″ Belt (amidships), 4½″ (ends), 1½″ Deck (on slopes), 5½″ Turrets and bases, 6″ Lower deck side and battery, 4½″ Lower deck bulkheads and Battery bulkheads, 4¾ Conning tower. 4 Searchlights. Machinery: 2 sets 3-cylinder vertical triple expansion. 2 screws. Boilers: 12 Kanpon. Designed H.P.: 13,500 = 20 kts. (Now much less) Coal: *normal*, 650 tons; *maximum*, 1,200 tons.

Note.—Kasuga (ex-*Rivadavia*, ex-*Mitra*) built by Ansaldo; purchased from Argentina, 1904. Full armament includes **14**—6 inch guns.

MIDUHO. 1939.

MIDUHO. 1939.

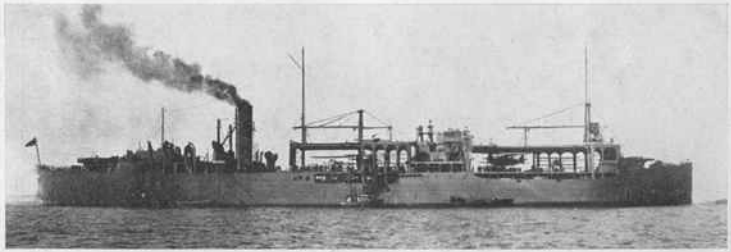
TITOSE (Nov. 29, 1936), **TIYODA** (Nov. 19, 1937), **MIDUHO** (May 16, 1938). *Standard* displacement: 9,000 tons. Dimensions: 577½ × 61⅔ × 19 feet (*mean*). Guns: **6**—5 inch AA. (paired), **20** M.G. AA. **20** aircraft, **4** catapults. Machinery: Geared turbines. H.P.: 15,000 = 20 kts. (*Miduho*, 9,000 = 17 kts.). Built under Second Fleet Replenishment Law, *Titose* having been laid down on Nov. 26, 1934, *Tiyoda* on December 14, 1936, and *Miduho* on May 1, 1937, the first two at Kure and the *Miduho* at Kawasaki, Kobe.

KAMIKAWA (Maru). 1939.

KAGU (MARU) (Harima, 1936). 6,807 tons *gross*. Dimensions: 453½ × 61 × 27½ feet. **KAMIKAWA (MARU)** (Kawasaki, 1937). 6,853 tons *gross*. Dimensions: 479½ × 62½ × 27½ feet. **KINUGASA (MARU)** (Kawasaki, 1936). 6,808 tons *gross*. Dimensions: 453½ × 60¾ × 27½ feet. **KINAGAWA (MARU)**. (Mitubisi, Nagasaki, 1938). 6,937 tons *gross*. Dimensions: 436½ × 58½ × — feet. In all: Guns: **2**—3 inch. Aircraft: **12**. Machinery: Diesel. B.H.P.: 14,500 = 17 kts.

TAKYO (MARU), YAGASA (MARU). Particulars wanted.

Note.—All 6 of the foregoing are ex-mercantile vessels, converted into Seaplane Carriers.



KAMOI. (Now has crane aft.) 1924 *Photo, Official.*

KAMOI (New York S.B. Co., June 8, 1922). *Standard* displacement: 17,000 tons (10,222 tons *gross*). Dimensions: 496 (*w.l.*), 478½ (*p.p.*) × 67 × 27½ feet. Guns: **2**—5·5 inch, **2**—3 inch AA. Machinery: G.E. (Curtis) turbines and electric drive. Boilers: 4 Yarrow. S.H.P.: 8,000 = 15 kts. Fuel: 2,500 tons coal. Laid down Sept. 14, 1921 and completed Sept. 12, 1922. Converted from a tanker 1932–33. The first Japanese warship to have electric drive installed.

Reported to carry from 10 to 16 aircraft, former being normal complement.

Seaplane Carriers—*continued.*

1932 *Photo.*

NOTORO (Kawasaki Co., Kobe, May 3, 1920). *Standard* displacement: 14,050 tons (8,000 tons *gross*). Complement: 155. Dimensions: 455 (*pp.*), 470¾ (*o.a.*) × 58 × 26½ feet. Guns: 2—4·7 inch, 2—3 inch AA. Reciprocating engines. H.P.: 5,850 = 12 kts. Oil Fuel: 1,000 tons. Converted from a tanker of the *Erimo* class (*vide* a later page). Laid down Nov. 24, 1919 and completed Aug. 10, 1920. Reported to carry from 8 to 16 aircraft, latter figure presumably representing maximum stowage.

Submarine Chasers.

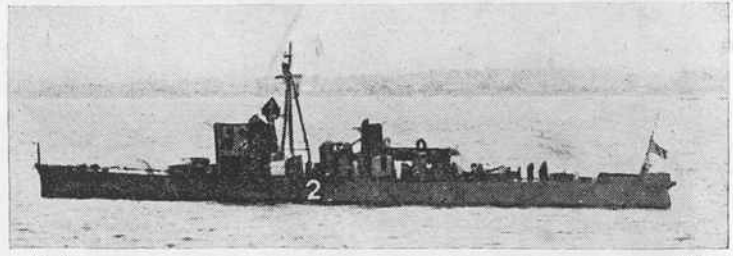
No. 53. 1938.

No. 51 (June 9, 1937), **No. 52** (Aug. 25, 1937), both by Turumi Steel Works; **No. 53** (July 15, 1937), by Osaka Iron Works.

Displacement: 170 tons. Dimensions: 146 × 15½ × 5½ feet. Armed with D.C. and 1 AA. gun. Machinery: Diesel (except No. 53, reported to be steam turbine). H.P.: 3,000 = 23 kts.

This represents **No. 3**, no longer in service. **Nos. 4–12** are understood to be of similar appearance.

Nos. 4 (Osaka Iron Works, Sept. 13, 1938), **5** (Mitubisi, Yokohama, July 28, 1938), **6** (Turumi Steel Works, Feb. 6, 1939), **7** (Turumi, 1939), **8** (Tama Works, Aug. 9, 1938), **9** (Mitubisi, Yokohama, 1938), **10** (Osaka Iron Works, Jan. 31, 1939), **11** (Turumi Steel Works, 1939), **12** (Tama Works, Feb. 8, 1939. Displacement: 290 tons. Dimensions: 180 × 18 × 6½ feet. Armed with 4 M.G. and D.C. H.P.: 2,600 = 20 kts.



No. 2. 1935.

No. 1 (Uraga Dock Co., Dec., 1933), **No. 2** (Isikawazima, Dec., 1933).
Displacement: 300 tons. Dimensions: 210¾ × 19¾ × 5 feet. Armed with Depth Charges and 4 M.G. Machinery: Diesel. H.P.: 3,400 = 24 kts.

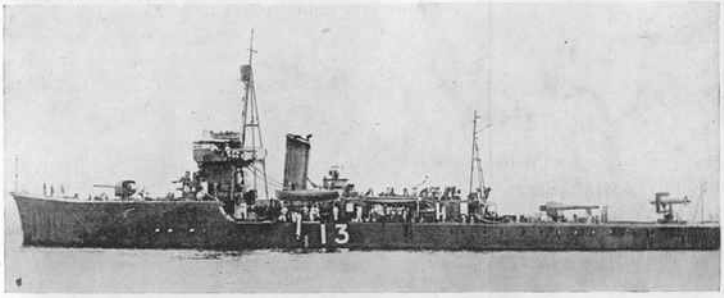
Minesweepers.

Photo wanted

(Single funnel type, resembling No. 13.)

No. 7 (Tama Works, June 16, 1938)
No. 8 (Uraga Dock Co., May 28, 1938).
No. 11 (Uraga Dock Co., Dec. 28, 1938).
No. 9 (Maiduru, Sept. 10, 1938)
No. 10 (Isikawazima Co., Sept. 22, 1938).
No. 12 (Isikawazima Co., Feb. 18, 1939).

Displacement: 630 tons. Complement: 88. Dimensions: 226 × 25½ × 7⅝ feet. Guns: 3—4·7 inch, 2 M.G. Machinery: Triple expansion. 2 shafts. I.H.P.: 3,850 = 20 kts. Boilers: 3 Kanpon, coal-fired.



No. 13. 1935.

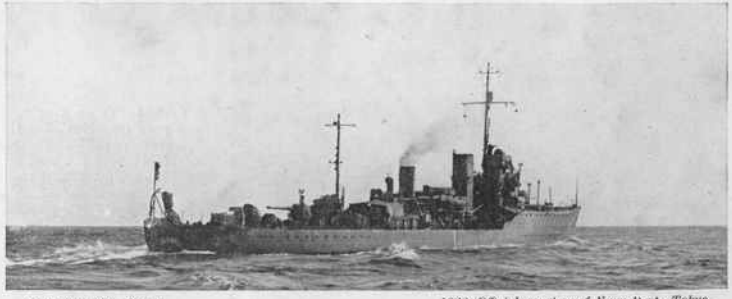
No. 13 (Hudinagata S.B. Co., March 30, 1933).
No. 14 (Osaka Iron Works, May 20, 1933).
No. 15 (Hudinagata S.B. Co., Feb. 14, 1934).
No. 16 (Tama Works, March 30, 1934).
No. 17 (Osaka Iron Works, Aug. 3, 1935).
No. 18 (Tama Works, Sept. 19, 1935).

Nos. 13—16: Displacement: 492 tons. Dimensions: 232½ × 25 × 6 feet.
Nos. 17, 18: Displacement: 511 tons. Dimensions: 218 × 25½ × 6½ feet.
In all: Guns: 2—4·7 inch, 2 M.G. Machinery: Triple expansion. I.H.P.: 3,200 = 20 kts., except *Nos.* 17, 18, only 19 kts. Coal-fired.

Notes.—All built under First Fleet Replenishment Law of 1931.

Minesweepers—*continued.*

MINESWEEPER No. 6 (Tripod foremast in this one and No. 5). 1930, *Photo.*



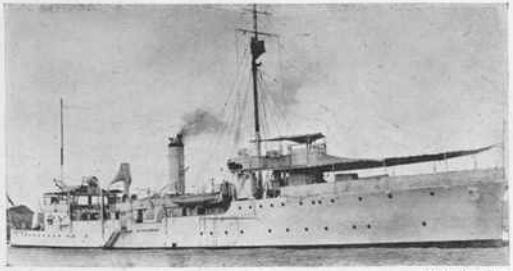
MINESWEEPER No. 1. 1938, *Official, courtesy of Navy Dept., Tokyo.*

Nos. 1 (Harima S.B. Co., March 6, 1923), **2** (Tama Works, March 17, 1923), **3** (Osaka Iron Works, March 29, 1923), **4** (Saseho, April 24, 1924), **5** (Tama Works, Oct. 30, 1928), **6** (Osaka I.W., Oct. 29, 1928). All provided by 1920–28 Fleet Replenishment Law. 615 tons. 235 × 26½ × 7¼ feet. Guns: 2—4·7 inch, 1—3 inch AA., 2 D.C. throwers. Complement: 87. Triple expansion engines. I.H.P.: 4,000 = 20 kts. 3 Kanpon boilers, coal-fired.

Gunboats.

ATAKA (Now has tripod foremast, as in silhouette). 1936, *Official.*

ATAKA (ex-*Nakoso*). (Yokohama Dock Co., April, 1922). 725 tons. Complement: 118. Dimensions: 222 × 32 × 7½ feet. Guns: **2**—4·7 inch, **2**—**3** inch AA. Machinery: Triple expansion. Designed H.P.: 1,700 = 16 kts. Boilers: 2 Kanpon. Authorised under 1920–28 Fleet Law, laid down 1921, and completed 1922. Equipped for submarine salvage work.



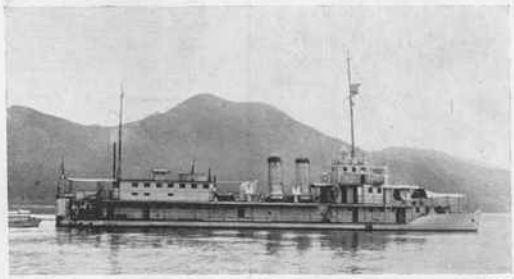
1936 *Official.*

SAGA (Saseho, 1912). 685 tons. Complement, 99. 210×29½×7½ feet. Guns: **1**—4·7 inch, **3**—3 inch AA., **6** M.G. Machinery: Triple expansion, 3 screws. Boilers: 2 Kanpon. Designed H.P. 1600 = 15 kts. Coal: *maximum* 140 tons. Completed Nov., 1912.

River Gunboats.

Photo wanted.

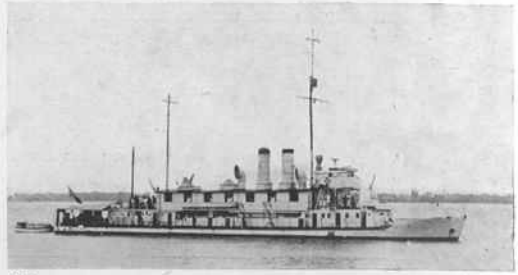
HUSIMI (Hudinagata, March 26, 1939). Displacement: 320 tons. Dimensions: 164 × 32 × 3½ feet. Guns: 1—3 inch A.A. Machinery: 2 sets triple expansion. I.H.P. 2 200 = 16·5 kts. Boilers: 2 Kanpon.



ATAMI. 1937.

ATAMI (Tama Works, March 30, 1929), **HUTAMI** (Hudinagata Co., Nov. 20, 1929). Displacement: 170 tons. Dimensions: 148⅜ × 20½ × 3 feet. Guns: **1**—3 inch AA., **6** M.G. Machinery: 2 sets triple expansion. H.P.: 1,200 = 16 kts. Boilers: 2 Kanpon. Completed 1929 and 1930 respectively.

River Gunboats—*continued.*



SETA. 1937.

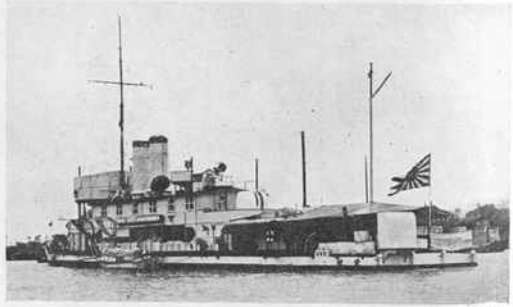
HIRA (March 24, 1923, Mitubisi, Kobe).

HODU (April 19, 1923, Mitubisi, Kobe).

KATADA (July 16, 1923, Harima S.B. Co.).

SETA (June 30, 1922, Harima S.B. Co.).

Displacement: 305 tons. Dimensions: 180 × 27 × 3½ feet. Guns: **2**—3 inch AA., **6** M.G. Machinery: 2 sets triple expansion. Boilers: 2 Kanpon (mixed firing). Designed H.P.: 2,100 = 16 kts. Authorised under 1920–28 Fleet Law. Laid down 1922 and completed 1923.



1937.

TOBA (1911). 215 tons. Complement: 59. Dimensions: 180 × 27 × 2¾ feet. Guns: **2**—3 inch AA., **6** M.G. H.P.: 1,400 = 15 kts. Coal: 80 tons. Built at Saseho.

Note.—It is believed that a few ex-Chinese river gunboats have been repaired and refitted for service on the Yangtse.

Repair Ship.

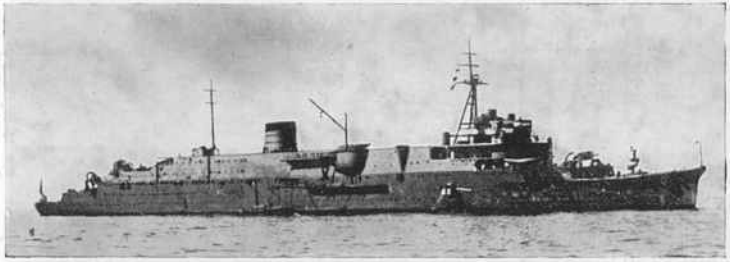
Photo wanted.

AKASI (Saseho, June 29, 1938). Displacement: 9,000 tons. Dimensions: 500 × 67½ × 18⅔ feet. Guns: 4—5 inch AA., 12 M.G. Machinery: 2 sets geared turbines. S.H.P.: 10,000 = 19 kts. First big repair ship built for the Imperial Japanese Navy, and the largest vessel ever launched at Saseho up to that date. Laid down Jan. 18, 1937, under Second Fleet Replenishment Law.

Submarine Depot Ships (*Sensui Bokan*).

(*For appearance, vide silhouette.*)

TURUGIZAKI (Yokosuka June 1, 1935), **TAKASAKI** (Yokosuka, June 19th, 1936). Standard displacement: 12,000 tons. Dimensions: 660½ × 59½ × 21 feet. Guns: 4—5 inch AA., 12 M.G. H.P.: 13,000 = 19 kts. Both built under Second Replenishment Law of 1933, and completed Jan. 15, 1939, and 1940, respectively.

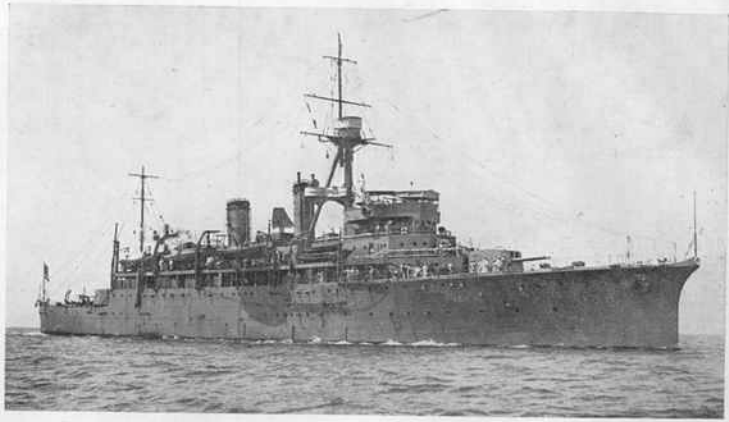


1936.

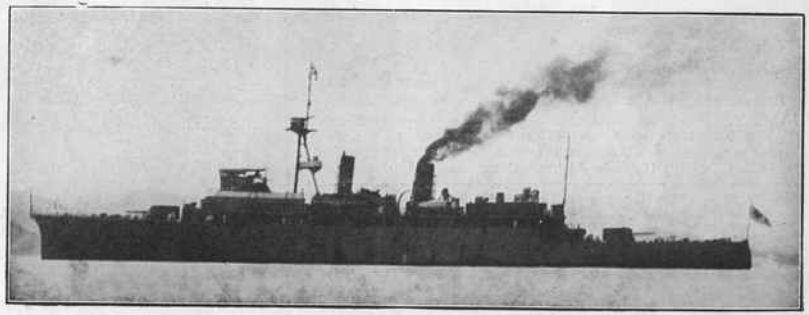
TAIGEI (Yokosuka, Nov. 16, 1933). Displacement: 10,000 tons. Dimensions: 647 (*w.l.*), 689 (*o.a.*) × 59 × 17 feet. Guns: 4—5 inch AA., 12 M.G. 4 sets Diesels. H.P.: 13,000 = 20 kts. Complement: 413. 3 Aircraft included in equipment, with 2 catapults.

Notes.—Laid down April 12, 1933; completed March 31, 1934. *Taigei* means Great Whale.
Reported to roll badly owing to light draught.

Submarine Depot Ships—*continued.*



TYOGEI (2 steam pipes to first funnel). 1934 *Photo.*



ZINGEI. (Now has white band round first funnel). *Photo added* 1926.

ZINGEI (May 4, 1923), **TYOGEI** (March 24, 1924). Both by Mitubisi Co., Nagasaki. 5,160 tons. Dimensions: 380 × 53 × 19½ feet (*mean*), 22¾ (*max.*). Geared turbines. 2 shafts. *Zingei*, 6 Kanpon boilers; *Tyogei*, 5. H.P.: 7,000 = 16 kts. Guns: 4—5·5 inch, 2—3 inch AA., 2 M.G. 2 searchlights. Each equipped to carry 1 seaplane. Both laid down in 1922, completed in August 1923 and August 1924, respectively.

Zingei—Swift swimming Whale. *Tyogei*—Long Whale.

Submarine Depot Ships—*continued.*

1937.

KOMAHASI (Saseho, May 21, 1913). 1,125 tons. Dimensions: 227 × 35 × 17¾ feet. Guns: 2—3 inch, 1—3 inch AA. H.P.: 1,200 = 13·9 kts. Was originally built as a Naval Transport. Laid down Oct. 7, 1912, and completed Jan. 20, 1914.

Fleet Supply Ship.

MAMIYA. (4 legs to mainmast). *Photo added* 1935.

MAMIYA (Kawasaki Co., Kobe, 26 Oct., 1923). Displacement: 15,820 tons. Dimensions: 475 × 61 × 28 feet. Guns: 2—5·5 inch, 2—3 inch AA. Triple expansion engines. 8 Kanpon boilers. H.P.: 10,000 = 14 kts. Complement, 195.

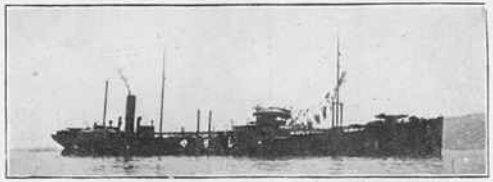
Colliers (rated as Transports).

NOZIMA. 1933 *Photo.*

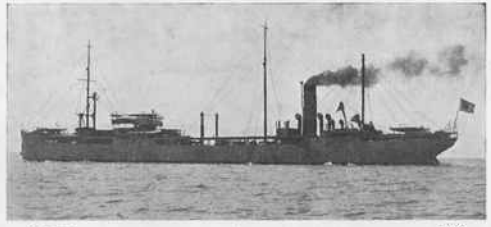
(Note: Is passing "Akagi" seen over well decks.)

NOZIMA (Feb. 3, 1919), **MUROTO** (Oct. 23, 1918). Both built by Mitubisi Co., Kobe. 8,215 tons. Dimensions: 345 × 50 × 23·9 feet. Guns: 2—4·7 inch. H.P.: 2,500 = 12·5 kts. Coal: 877 tons. Built under Special 1918–19 Programme.

Oilers (Officially rated as Transports).



SIRIYA. *Photo added* 1927.



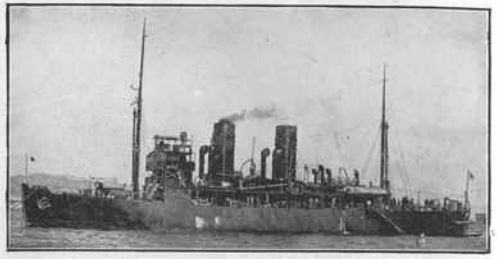
NARUTO. 1932.

IRO, SIRIYA, TURUMI, NARUTO, HAYATOMO, ONDO, SATA, ERIMO and **SIRETOKO.**

Displacement: 14,050 tons. (8,000 tons *gross*). Dimensions: 470¾ (*o.a.*), 455 (*p.p.*) × 58 × 26½ feet. Guns: 2—5·5 inch. 2—3 inch AA., *except Erimo* and *Siretoko*, 2—4·7 inch, 2—3 inch AA. Reciprocating engines. 4 cylindrical boilers, (except *Naruto*, 6 Miyabara). I.H.P.: 5,850 = 12 kts. Fuel: 8,000 tons oil as cargo and 1,000 tons oil for own bunkers. Complement: 155–157.

Name.	*Builder.*	*Begun.*	*Launch.*	*Comp.*
Erimo ..	Kawasaki Co., Kobe.	3/5/20	28/10/20	16/12/20
Siretoko ..		16/2/20	17/7/20	20/9/20
Ondo ..		15/3/22	21/10/22	12/3/23
Iro	Osaka I.W.	2/9/21	5/8/22	30/10/22
Turumi ..		10/3/21	29/9/21	14/3/22
Sata ..	Yokohama Dock Co.	6/3/20	28/10/20	24/2/21
Siriya ..		7/4/21	12/11/21	8/2/22
Hayatomo ..	Kure	14/3/22	4/12/22	18/5/24
Naruto ..	Yokosuka	11/4/22	30/1/23	30/10/24

Ice Breaker.



OTOMARI. *Photo added* 1925 *by courtesy of the Ministry of Marine.*

OTOMARI (Kawasaki Co., Oct. 3, 1921). 2,330 tons. Dimensions: 200 × 50 × 18½ feet. Guns: 1—3 inch. Reciprocating engines. 5 cylindrical boilers. H.P.: 4,000 = 13 kts.

Miscellaneous Repair, Depot and Training Ships.

1929 *Photo.*

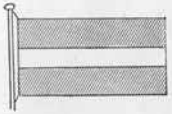
ASAHI (March, 1899). Ex-battleship of 11,441 tons standard displacement, rendered non-effective. Dimensions: 425¼ (*o.a.*) × 75¼ × 27¼ feet. Machinery: 2 sets vertical triple expansion. 2 screws. 4 cylindrical boilers (replacing original Belleville). Present speed 18 kts. The name of this ship means "Rising Sun." She has no armament.

SIKISIMA (Nov., 1898). Ex-battleship of 11,275 tons. No guns.

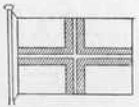
HUZI (March, 1896). Ex-battleship of 9,179 tons. No guns.

LATVIA.

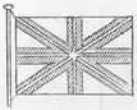
Flags.



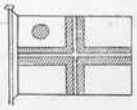
MERCANTILE.



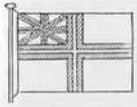
ENSIGN.



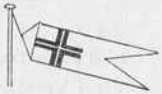
JACK.



ADMIRAL.



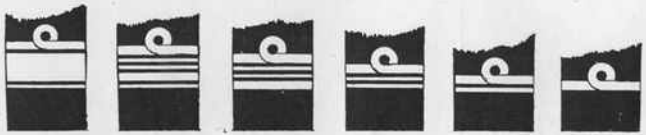
COMMANDER-IN-CHIEF OF FORCES.



CAPTAIN COMMANDING NAVAL FORCES

Colour of Ships: Light grey.
Personnel: About 450 permanent + 200 yearly conscripts.
Minister of War: General T. Balodis.
Commanding Officer, Naval Forces: Captain T. Spade.

Naval Uniforms.



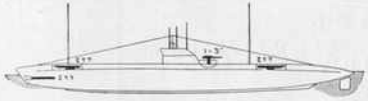
Admirālis *Rear-Admiral* | Juras Kapteinis *Captain* | Komand Kapteinis *Commander* | Kapteinis *Lt. Commander* | Virsleitnants *Lieutenant* | Leitnants *Sub-Lieutenant*

Mercantile Marine.

(From "Lloyd's Register," 1939 figures.)

93 vessels of 191,848 tons *gross*.

2 Submarines.



RONIS 1927 *Photo, A. & Ch. de la Loire (Builders).*

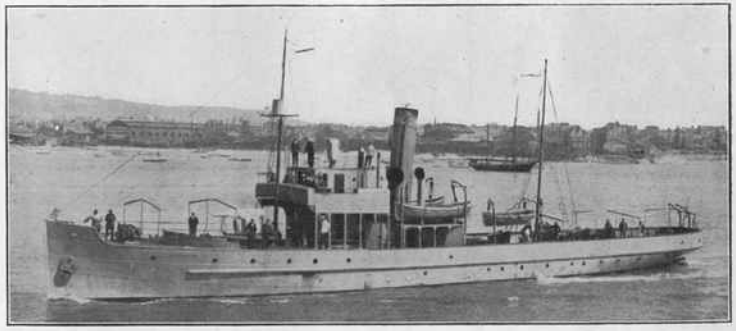
2 *Loire-Simonot* type: ***Ronis*** (At. & Ch. de la Loire, Nantes, July 1st, 1926), ***Spidola*** (Ch. & At. Augustin Normand, Havre, Oct. 6th, 1926). Displacement: $\frac{310}{414}$ tons. Dimensions 180½ × 15 × 10 feet. Armaments: 1—3 inch AA., 2 M.G., 6—17·7 inch tubes (2 fixed bow, other 4 in revolving twin mounts.) Machinery: 2 sets Sulzer Diesels. H.P. $\frac{1,200}{700}$. Speed: $\frac{14}{8\cdot5}$ kts. Oil Fuel: 19 tons. Radius: $\frac{4,000}{2,500}$ miles at $\frac{14}{9}$ kts. Diving limit. 28 fathoms. Complement, 28.

1 Gunboat.

1926 *Official Photo.*

VIRSAITIS (ex-German Minesweeper *M* 68, Neptun Werft, Rostock, 1917). Reconstructed at Riga, 1921-22, after being sunk during War. Displacement: 380 tons. Dimensions: 184 (*w.l.*) × 24¼ × 7¼ feet. Guns: 2—3·4 inch. AA., 2—57 mm., 4 M.G. 1 S.L. H.P. 1850 = 17 kts. Coal: 120 tons. Complement, 69.

2 Minesweepers.

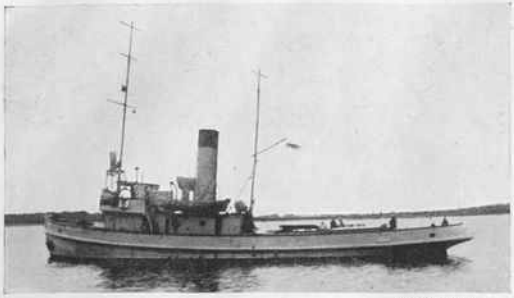


IMANTA. 1927 *Photo, Messrs. Normand (Builders).*

VIESTURS (Chantiers Dubigeon, Nantes, May 27th, 1926), **IMANTA** (Normand, Havre, Aug. 11th, 1926). Displacement: 255 tons. Dimensions: 160 × 21 × 5 feet. Guns: 1—3 inch AA., 4 M.G. Provision for 30 mines. Machinery: 2 sets triple expansion. H.P. 750 = 14 kts. Fuel: 30 tons. Complement, 39.

Note.—These two vessels were designed for the Latvian Navy by Ch. & At. Augustin Normand.

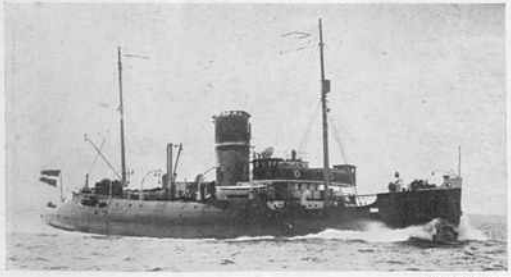
Submarine Depot Ship.



1936, *Official.*

VARONIS (1908). Displacement : 250 tons. Dimensions : 95½ × 21½ × 12 feet. I.H.P. : 425 = 10 kts. (Originally an icebreaker.)

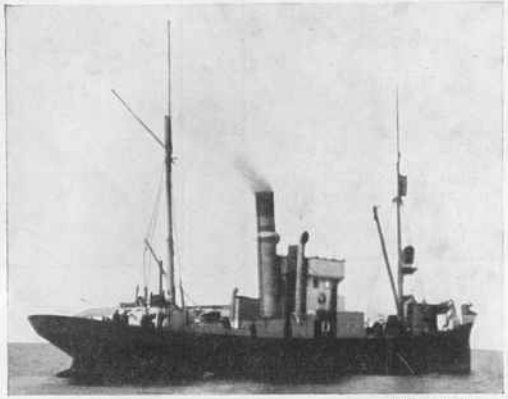
Icebreaker.



1939 *Official.*

KRISJANIS VALDEMARS (Beardmore, 1925). Displacement 2,800 tons. Dimensions : 196½ × 55½ × 22 feet. Machinery : Triple expansion. I.H.P. : 5,200 = 15 kts. Coal : 350 tons. Complement : 55.

Surveying Vessel.



1936, *Official.*

HIDROGRAFS (ex-*Weichsel*, built by J. W. Klawitter, Danzig, 1918). Displacement : 600 tons. Dimensions : 126½ × 23½ × 13½ feet. Machinery : Triple expansion. Speed : 10 kts.

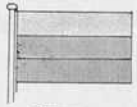
Gunnery Tender.

ARTILLERISTS (1910). Displacement : 150 tons. Dimensions : 74½ × 17½ × 8½ feet. I.H.P. 350 = 9 kts.

Special Note.

The foregoing 9 vessels will presumably be added to the Soviet Navy under the new political status of Latvia, 1940.

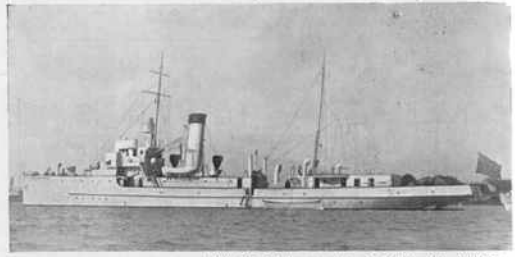
LITHUANIA.



ENSIGN.

Minister of Defence : Colonel Stasys Dirmantas.

Patrol Vessel.



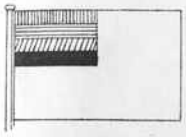
1936 *Official, by courtesy of Lithuanian Legation.*

PREZIDENTAS SMETONA (ex-German minesweeper *M* 59). (Geestemunde, 1917.) (Reconstructed.) Displacement : 380 tons. Complement, 48. Dimensions : 184 (*w.l.*), 193 (*o.a.*) × 24½ × 8½ feet (*max.* draught). Guns : 2—3 inch, 3 M.G. Machinery 2 sets triple expansion. 2 shafts. I.H.P. : 1,800 = 16 kts. Boilers : 2 Schulz. Coal : 160 tons.

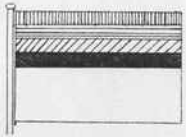
Special Note.

This ship will presumably become part of Soviet Navy under new political status of Lithuania, 1940.

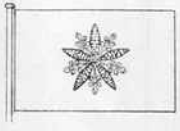
MANCHUKUO.



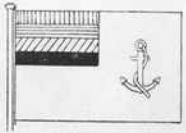
MERCANTILE FLAG AND JACK



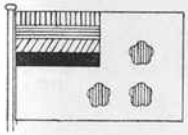
ENSIGN



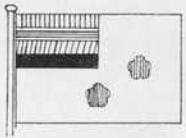
IMPERIAL STANDARD



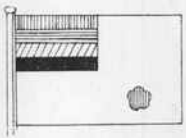
MINISTER OF DEFENCE



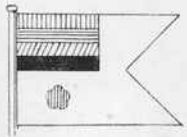
ADMIRAL



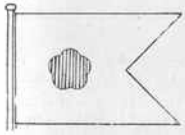
VICE-ADMIRAL



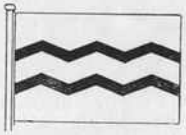
REAR-ADMIRAL



COMMODORE



SENIOR OFFICER



TRANSPORT FLAG

General Notes.—Though the following details are by no means complete, they have been officially revised, and present a comprehensive record of the Manchukuo Navy. Most of the vessels listed appear to be river craft. Several have their bows strengthened against floating ice. Some of those built in Japan were re-launched at Kharbin. In the past, much confusion has arisen through ships being referred to at different times by their Manchukuo, Japanese and Chinese names.

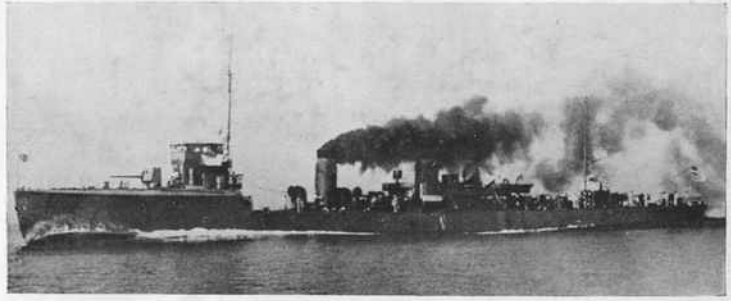
Insignia of Rank.

Shang-chiang	*Chung-chiang*	*Shao-chiang*	*Shang-hsiao*	*Chung-hsiao*	*Shao-hsiao*	*Shang-wei*	*Chung-wei*	*Shao-wei*
Admiral	Vice-Admiral	Rear-Admiral	Captain	Commander	Lieut.-Commander	Lieut.	Sub-Lieut.	Acting Sub-Lieut.

Other branches have distinguishing colours between stripes as follows:

Engineers (*Lun-chi*), Purple.
Surgeons (*Chun-i*), Red.
Paymasters (*Chun-hsu*), White.
Constructors (*Tsao-hsin*), Green.

Destroyer



Added 1939.

Hai Wei (ex-*Kasi*), (Maiduru, 1916). Acquired from Japan in 1937. Displacement: 755 tons. Dimensions: 275 (*o.a.*) × 25 × 7½ feet. Guns: 3—4·7 inch, 3 M.G. Torpedo tubes: 6—18 inch (tripled). 1 searchlight. Machinery: 3 sets Curtis turbines S.H.P.: 16,000 = 31·5 kts. Boilers: 4 Kanpon. Fuel: 212 tons oil and 92 tons coal. Complement: 109.

TING PIEN. 1935.

TING PIEN, CHIN JEN (Harima Co., 1935). *Standard* Displacement : 290 tons. Complement, 70. Dimensions : 195 × 29 × 3 feet. Guns : 2—4·7 inch AA., 3 M.G. Machinery : Diesels. B.H.P. : 680 = 13 kts.

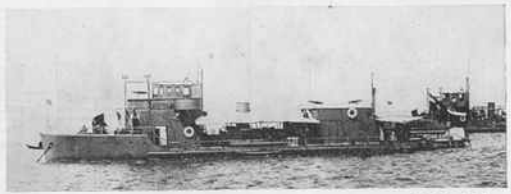
Note.—Japanese versions of these names are *Teiken, Shinjin.*

YANG MIN. 1935.

SHUN TIEN. 1936, *Official.*

SHUN TIEN, YANG MIN (Harima Co., 1934). *Standard* Displacement : 270 tons. Complement, 70. Dimensions : 183 × 29 × 3 feet. Guns : 2—4·7 inch AA., 3 M.G. Machinery : Diesels. B.H.P. : 680=12·5 kts.

Note.—Japanese renderings, *Junten, Yomin.*



TATUNG. 1936, *Official.*

LIMIN. 1936, *Official.*

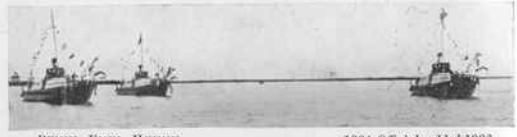
TATUNG, LIMIN (Mitubisi, 1933). Displacement, 65 tons. Complement, 20. Dimensions : 100 × 16 × 2½ feet. Guns : 1—57 mm. howitzer, 3 M.G. Machinery : Diesels. B.H.P. : 240 = 10·5 kts.

Note.—Japanese names, *Daido, Rimin.*

Photo wanted.

CHIMIN (Harbin, 1934). 20 tons. Dimensions : 65 × 11 × 2 feet. Guns : 2 M.G. Machinery : Diesel. B.H.P. : 80 = 8·5 kts.

EMIN. 1935.



PUMIN, EMIN, HUIMIN. 1934 *Official, added* 1936.

EMIN, HUIMIN, PUMIN (Kawasaki Co., 1933). Displacement : 15 tons. Dimensions : 56 × 11 × 2½ feet. Guns : 3 M.G. Machinery : Diesels. B.H.P. : 80 = 8·5 kts.

Note.—Japanese names, *Eimin, Keimin, Fumin.*

LISUI (ex-German gunboat *Vaterland*), (Schichau, Elbing, August 26, 1903.) Displacement : 350 tons (*full load ?*). Complement, 50. Dimensions : 164 × 26¼ × 2½ feet. Guns : 2—57 mm., 2 M.G. Machinery : Triple expansion. I.H.P. : 1,380 = 13 kts. (*trials*), present speed under 7 kts. Boilers : Schulz. Coal : 80 tons.

Note.—Japanese name, *Risui*

Gunboats—*continued.*

1936, *Official.*

CHIANG TUNG (ex-Russian, 1903 ?). Displacement : 250 tons. Dimensions : 150 × 18½ × 3 feet. Guns : 1—3 inch, 4 M.G. Speed : 4·5 kts. (Needs re-boilering.)

Note.—Japanese name, *Kotsu.* It is possible that this vessel may be *ex-Mongol*, but dimensions as given above disagree.

Added 1935.

CHIANG CHING, CHIANG PIEN (both ex-Russian, 1897–1900). Displacement : 360 tons. Dimensions : 164 × 31½ × 3½ feet. Guns : 1—3 inch, 4 M.G. Present speed, 7 to 7·5 kts.

Note.—Japanese names, *Kosei, Kohei.*

LICHI (ex-Russian, 1895). (Photo wanted.) Displacement : 362 tons. Dimensions : 158 × 42¾ × 3½ feet. Guns : 1—3 inch, 4 M.G. Present speed about 7·5 kts.

Note.—Japanese name, *Risei.*

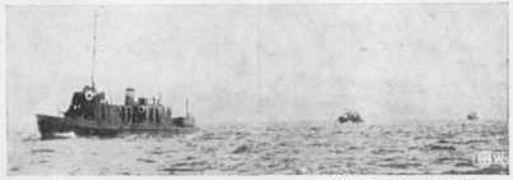
Patrol Vessels.

Note.—These vessels are under the authority of the Police organisation and are not part of the Navy.

HAIFENG. 1934 *Official, added* 1936.

HAIFENG, HAILUNG (Kawasaki Co., 1933.) Displacement : 184 tons. Dimensions : 143 × 20 × 5 feet. Guns : 2—3 inch, 2 M.G. Machinery: 2 sets Diesels. Speed: 14 kts. Strengthened for ice navigation.

Note.—Japanese names, *Kaiho, Koiryin.*

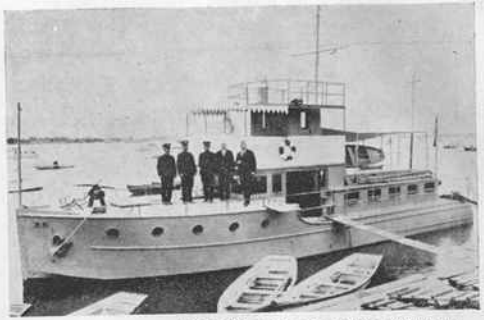


1934 *Official, added* 1936.

HAI KUANG, HAI JUI, HAI JUNG, HAI HUA (All Kawasaki, 1933.) Displacement : 45 tons. Dimensions : 85 × 12¾ × 3 feet. Guns : 1—57 mm., 2 M.G. Speed : 12 kts.

Note.—Japanese names, *Kaiko, Kaizui, Kaiei, Kaikwa.*

Surveying Vessel.

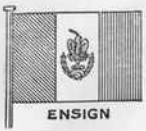


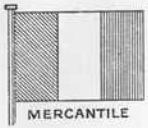
Added 1940, *courtesy Mr. Matthew Thomlinson.*

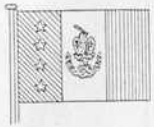
(Name not reported). Launched in Japan during 1935. Dimensions : 56 (*o.a.*) × 14½ × feet. Machinery : 2 Kermath Diesels

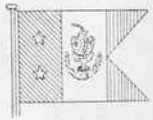
Note.—It is probable that other ships exist, but the foregoing are the only ones whose identity has been established. Names reported include *Shuan An, Shuan Kai, Tierhaipien, Tsifuhaipien, Jurasen, Shuntau, Kokei, Konei, Suikai, Haiwang.* It is possible that some of these are transports. Information on this subject will be welcomed.

MEXICO


ENSIGN


MERCANTILE


SECRETARY OF WAR AND NAVY DEPTS.

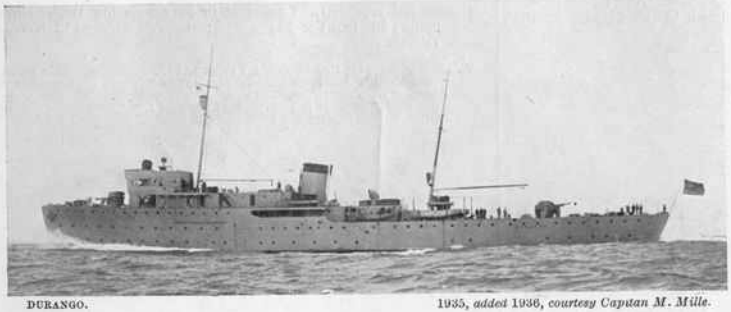

OFFICER COMMANDING A DIVISION.

Minister of War and Marine : General Quiroga.
Chief of Naval Staff : Rear-Admiral O. P. Blanco.

Personnel: 436 officers, 1,481 men.

Mercantile Marine (1939) :
56 vessels of 38,373 tons *gross*.

SLOOP. (Classed as *Trasporte*).


DURANGO. 1935, *added* 1936, *courtesy Capitan M. Mille.*

DURANGO (Union Naval de Levante, Valencia, June 28, 1935).

Standard displacement: 1,600 tons. Dimensions: 282 × 40 × 10 feet.

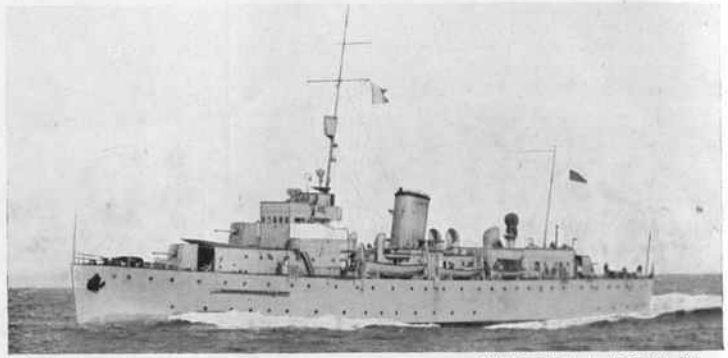
Guns : 2—4 inch, 4—25 mm. AA. (twin mounts), 8—13 mm. AA.

Machinery : Parsons geared turbines. 2 shafts. S.H.P.: 6,500 = 20 kts. Yarrow boilers.

Accommodation for 40 officers, 450 men, 80 horses. Designed primarily as an armed transport, this vessel carries a weaker armament than *Potosi* class. A sister ship, the *Zacatecas*, was taken over by the Spanish Navy on completion and re-named *Calvo Sotelo*.

SLOOPS.

(Classed as *Cañoneros*).


GUANAJUATO. 1936, *favour A. E. Kimberley, Esq.*

QUERÉTARO. 1935, *added* 1936, *courtesy Capitan M. Mille.*

GUANAJUATO (May 29, 1934), **QUERÉTARO** (June 29, 1934). (Both Societa Español de Construccion Naval, Ferrol), **POTOSI** (S.E. de C.N., Matagorda, Cadiz, August 24, 1934).

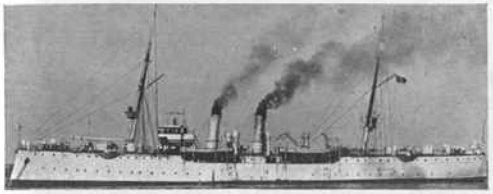
Standard displacement : 1,300 tons.
Dimensions : 260 × 37¾ × 10 feet.

Guns :
3—4 inch
4—25 mm. AA. (twin)
8—13 mm. AA.

Machinery : Parsons geared turbines. 2 screws. S.H.P.: 5,000 = 20 kts. Yarrow boilers.

Note.—Guanajuato and *Potosi* are on Pacific Coast, *Queritaro* on Atlantic.

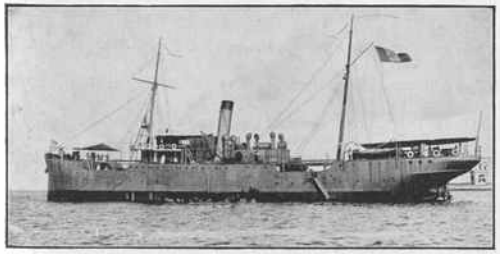
SLOOPS—*continued.*



1938, *courtesy A. J. Wohler, Esq.*

NICOLAS BRAVO (Odero, 1903). 1227 tons. Dimensions: 242 × 34 × 9¾ feet. Guns: 2—4 inch, 4—6 pdr. H.P. 3000 = 12·25 kts. 2 screws. Oil fuel: 226 tons. Complement, 130.
(Classed as a Gunboat.)

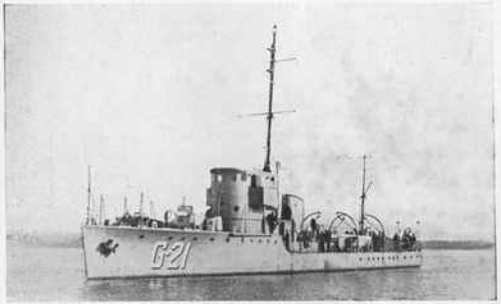
Training Ship
(*Buque Escuelas*).



1925 *Photo, by courtesy of Captain Julio Morales Coello, C.N.*

PROGRESO (Odero, 1907). 1,590 tons. Dimensions: 230 × 36½ × 11 feet. Guns: 4—6 pdr. H.P. 1400 = 13 kts. Coal: 209 tons. Refitted, 1937–38.

Patrol Vessels
(Classed as *Guardacostas*).



1935, *courtesy of Capitan M. Mille.*

10 *vessels:* Nos. **G 20–29** (Compania Euskalduna de Construccion, Bilbao,) 1934–35. Displacement: 130 tons (*standard*), 180 tons (*full load*). Dimensions: 147½ (*p.p.*), 153 (*w.l.*) × 16½ × 5½ feet (*mean*). M.A.N. Diesels. H.P.: 3000 = 26 kts. 2 screws. Guns: 2—25 mm. AA. (twin mount), (forward), 4—13 mm. AA. (aft), (quadruple mount). Complement: 21.

Note.—Though of British design, these vessels were built in Spain, with German engines and bullet-proof hull plating, and armed with French guns.

ERACRUZ. 1938, *courtesy A. J. Wohler, Esq.*

MAZATLAN, ACAPULCO (ex-*Salinas*), **VERACRUZ.**
All are ex-trawlers purchased in Canada 192[illegible] Built 1918. 486 tons. Dimensions: 133 × 24 × 13½ feet Guns: 1—6 pdr., 2 M.G. I.H.P. 557 = 8 kts. Coal: 208 tons.
Veracruz refitted, 1937-38.

Vessels under control of Free Ports Department.

COAHUILA, JALISCO (Cramps, Philadelphia, 1916). 2,876 tons *gross*. Displacement: 5,794 tons. I.H.P. 1,350 = 10·5 kts. Oil fuel.

Note.—Above ships are available for transport service when required.

NICARAGUA

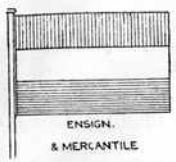
NICARAGUA — ENSIGN.

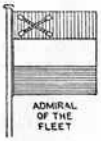
Patrol Boat.

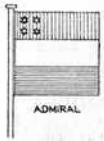
For appearance, vide photo of this type in the U.S. Coast Guard section.

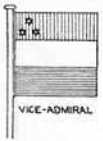
Ex-**C.G. 274** (1924). Purchased from U.S. Coast Guard, 1938. Wood. Displacement: 37 tons. Dimensions: 75 × 13¾ × 4 feet. Guns: 1—1 pdr. Machinery: Petrol engine. B.H.P.: 400 = 13·5 kts.

NETHERLANDS.

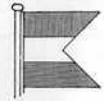

ENSIGN.
& MERCANTILE

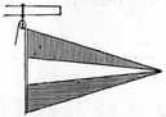

ADMIRAL OF THE FLEET


ADMIRAL

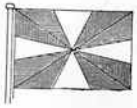

VICE-ADMIRAL

REAR-ADMIRAL


CAPTAIN COMMANDING DIVISION

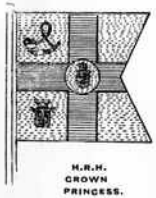

SENIOR NAVAL OFFICER

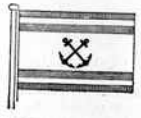
ROYAL NAVAL RESERVE


JACK

PRINCE CONSORT

ROYAL STANDARD H.M. THE QUEEN


H.R.H. CROWN PRINCESS.


MINISTER OF DEFENCE

Officers commanding Flotillas fly a yellow pendant with black letter D in centre, from signal yard.

Naval Guns

	Cal. inch	Cal. cm.	Official Mark No.	Length, cals.	Weight of Shell	Initial Vel. ft. secs.	K = Krupp, B = Bofors, F = Wilton-Fijenoord
HEAVY	11	28	—	42½	595	2920	*Soerabaja*, K.
MEDIUM	5·9	15	11	50	101½	2953	Twin mounting. *Tromp* class, A.A., F.
	5·9	15	10	50	101½	2953	Single, *De Ruyter*, A.A., F.
	5·9	15	9	50	101½	2953	Turrets, *De Ruyter*, A.A., F.
	5·9	15	7, 8	50	101½	2953	*Flores* class, B.
	5·9	15	6	50	101½	2953	*Java, Sumatra*, B.
	4·7	12	7, 8	50	53	2444	Twin mounting. *W. van der Zaan* New destroyers, A.A., F.
	4·7	12	6	50	53	2950	*Van Kinsbergen*, A.A., F.
	4·7	12	4, 5	50	53	2950	Destroyers, B.and F.
	4·7	12	2, 3	40	52	2231	Gunboats, K.
LIGHT	4·1	10·5	1	50	39½	2897	*Gruno*, semi-automatic, K.
	3·5	8·8	1, 2, 3	45	22	2625	Submarines, A.A , B. and F.
	3·	7·5	6, 7, 8, 9	52	13	2936	A.A., B.
	3·	7·5	5	18	13	1148	Submarines, B.
	3·	7·5	4	30	13	2034	Torpedo boats, *Jan v. Amstel* class, K.
	3·	7·5	2, 3	40	13	2231	K.
	3·	SA. 7·5	4, 5	52	13	2936	A.A. semi-automatic, B.
	3·	SA. 7·5	1, 2, 3	52	13	2936	Semi-automatic, K
	1·5	4	3, 5	60	2·	2953	Twin mount. A.A., automatic, B. (No. 5 in submarines.)
	1·5	4	1, 2	40	2·	1975	Single mount, AA., automatic, B.
	1·4	3·7	—	30	1·	1358	

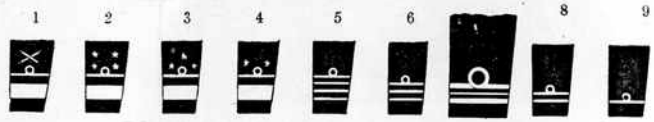
Notes to Flags.

Royal Standard / *H.R.H The Crown Princess* — Colours of these are *Nassau* blue (*dark* blue) and *dark* orange.

Governor-General of Netherland Indies : A broad pendant (Red, White, Blue) above Ensign.

Governors of Surinam and of Curaçao : Three white balls replace stars, in flag of Vice-Admiral's type.

Netherlands Uniforms.



	1	2	3	4	5	6	7	8	9
	Admiraal	Luitenant-Admiraal	Vice-Admiraal	Schout by-nacht	Kapitein ter Zee	Kapitein Luitenant ter Zee	Luitenant ter Zee 1e Kl.	Luitenant ter Zee 2e Kl.	Luitenant ter Zee 3e Kl
Corresponding to British	*Admiral of the Fleet*	*Admiral*	*Vice-Admiral*	*Rear-Admiral*	*Captain*	*Commander*	*Lieut.-Commander*	*Lieutenant*	*Sub.Lieut.*

In relative ranks (all with "curl"):

Doctors have insignia 5 to 9 in gold, with staff of Æsculapius on collar.
Paymasters ,, 5 to 9 in silver.
Engineers ,, 5 to 9 in gold, and are to be distinguished by the badge of a torch, crossed by two arrows, on the collar, instead of the usual anchor.

Flying Officers are of ranks 7, 8 and 9, and are to be distinguished by the badge of an aeroplane propeller on collar instead of the usual anchor. R.N. Reserve Officers are of ranks 5, 6, 7, 8, and 9 and wear no special distinguishing mark.

Notes.

Personnel : About 11,750 all ranks, navy and marine infantry, including Officers, both at home and in E. Indies. To be increased to 15,000.

Oversea Possessions : Dutch East Indies (Sumatra, Java, Borneo, etc.); Dutch Guiana (Surinam), Curaçao, Bonaire, Aruba, Saba, St. Eustatius and St. Martin.

Minister of Defence : Lieut-Col. A. Q. H. Dijxhoorn. *Chief of the Naval Staff :* Vice-Admiral J. Th. Furstner.

Asst. Naval Attaché, London : Lieut.-Com. A. de Booy.

Asst. Naval Attaché : Lieut.-Com. C. Molenburgh.

Chief of Naval Dept., E. Indies : Vice Admiral H. Ferwerda.

Colour of Ships : Greyish Blue, *except* Submarines, painted Dark Green in home waters and Black in E. Indies.

Netherland warships are referred to officially as H.N.M.S. All displacements are "Standard."

Form of Address Hr. Ms. "(Name of Ship)"

Mercantile Marine.

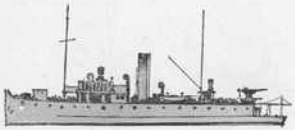
From "Lloyd's Register" 1939 figures.

1,532 Vessels of 2,972,871 gross Tonnage.

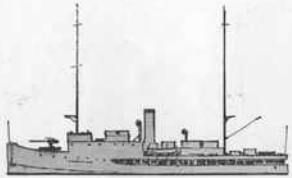
Defence Estimates, 1939.

Naval Construction	46,616,980 florins.	
Ordinary and other Expenses	181,987,418 ,,	(Navy and Army).
Non-military Expenses	5,092,622 ,,	
	233,697,020 ,,	

MERCUUR.

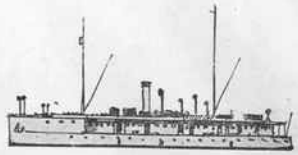


VAN MEERLANT.
DOUWE AUKES.
(MEDUSA, similar.)



PRO PATRIA.

MINE SWEEPERS.
A.B.C.D.



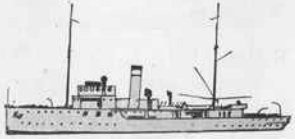
C. DREBBEL.

KRAKATAU.

GRUNO.

SOERABAJA.

DE RUYTER.



NAUTILUS.

W. VAN DER ZAAN.

SOEMBA and FLORES.

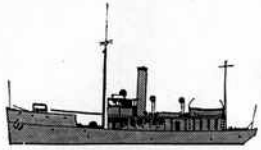
TROMP, HEEMSKERCK.

VAN KINSBERGEN.

JAN VAN AMSTEL *class.*

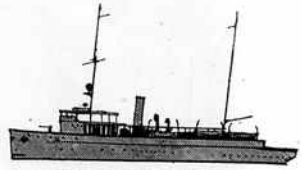
JAN VAN BRAKEL.

SUMATRA. JAVA.

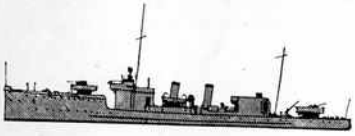


HYDROGRAAF.
(E. DE HAAN similar.)

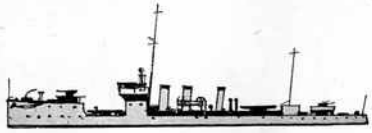
PRINS VAN ORANJE. GOUDEN LEEUW.



WILLEBRORD SNELLIUS.



Z 5.

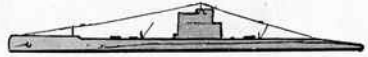


Z 6—8 *type*.

VAN GHENT *class*.

O 13—15.

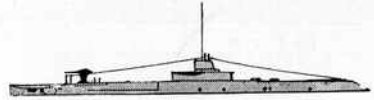
K 11—13.



O 9, 10.

K 14—18.

K 8—10.



K 7.

O 16.

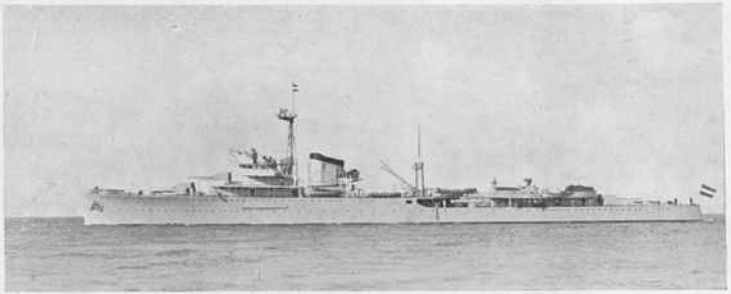
O 19, 20.

O 21—24.

Special Note.

The construction of 3 battleships of 27,000 tons was authorised in April, 1940, but orders had not been placed before the country was invaded.

The hulls of 2 cruisers of 8,350 tons, dimensions: 607 × 55¾ × 16¾ feet, the *Eendracht* (ex-*Kijkduin*) and *Zeven Provincien*, laid down at Rotterdam in 1939, were destroyed in May, 1940. Particulars and plan of these ships will be found in "Fighting Ships" for 1939.



TROMP. 1938 *Werner Crone.*

TROMP 1938, *courtesy Kapitein L.A.C. Doorman.*

Added 1939, *Wright & Logan*

TROMP (May 24, 1937), **HEEMSKERCK** (Sept. 16, 1939.)

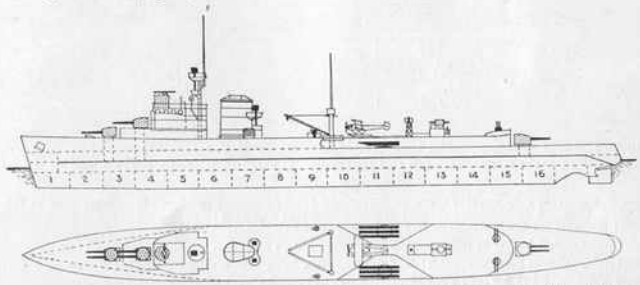
Displacement: 3,350 tons *standard*; 4,215 tons *full load*.
Complement: 309.

Length, (*p.p.*) 426½ feet; (*o.a.*) 433 feet. Beam, 40¾ feet. *Maximum* draught, 15 feet.

Guns: (Bofors)
6—5·9 inch, 50 cal.
8—40 mm. AA. (2 pdr.) (twin mounts)
4—12·7 mm. AA. (twin mounts)
4—D.C.T.
Torpedo Tubes:
6—21 inch (tripled).

Aircraft: 1, handled by derrick.

Armour: 2"–2½" Vert. Side
1½" Deck.



Machinery: Parsons geared turbines. 2 shafts. Designed H.P.: 56,000 = 33 kts. (34·5 on trials). Boilers: 4 Yarrow. Oil: 860 tons.

Notes.—*Tromp* authorised in 1931, and laid down 17 January, 1936, by Nederlandsche Scheepsbouw Mij., Amsterdam, having been designed by Directeur van Scheepsbouw 't Hooft. Machinery by Werkspoor. Much aluminium employed in internal construction. Cost 7,700,000 gulden. Was originally to have been a flotilla leader of 2,500 tons but design was expanded to present dimensions. She replaced *Hertog Hendrik* when completed in May, 1938. *Heemskerck* laid down Oct. 31, 1938 by same builders as replacement of former ship of that name, and completed in England in 1940.

Notes—The *Gunnery* 5.9 inch guns have 60° elevation and can be used as AA. weapons.

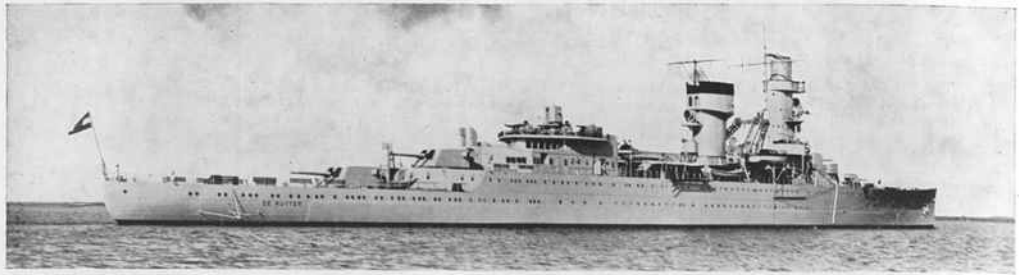
DE RUYTER (Wilton-Fijenoord Co., Rotterdam, May 11, 1935).
Displacement: 6,450 tons *standard*, 7,548 tons *full load*.
Complement: 435.

Length: 551 (*p.p.*), 557¾ (*o.a.*) feet. Beam: 51½ feet. Draught: 16½ feet (*mean*), 19½ feet (*max.*).

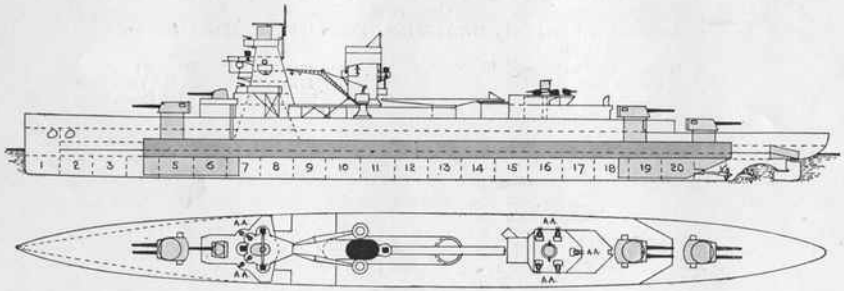
Guns: (Wilton-Fijenoord)
7—5·9 inch, 50 cal.
10—40 mm. AA. (twin mounts).
8—12·7 mm. AA. (twin mounts).
8—M.G.

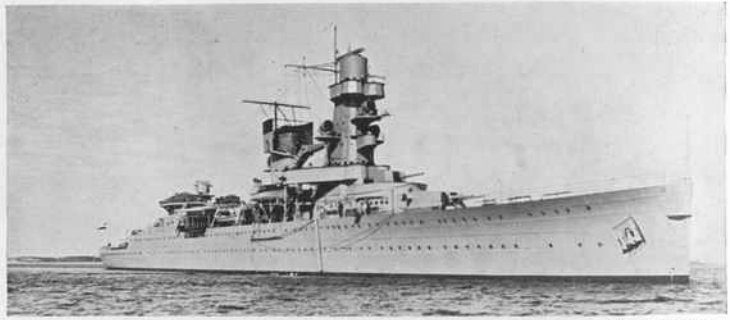
Aircraft:
2, with catapult.

Armour:
2″—3″ side.
1½″ deck.
1″ control positions.



1936, *W. Crone.*





1936, *W. Crone.*

Machinery: 2 sets Parsons geared turbines. 2 shafts. S.H.P.: 66,000 = 32 kts. 6 Yarrow boilers, working pressure 400 lbs. Oil: 1,000 tons. Radius of action: 5,000 miles at 12 kts.

General Notes.—This ship was laid down in November, 1933, completed in May, 1936, and placed in full commission Oct. 4, 1936. A considerable amount of electric welding was used in her construction. Echo sounding gear and loud speakers for transmitting orders are included in equipment.

Armour Notes.—Belt begins 85 feet from the bows and ends 65 feet from the stern, and is 13 feet wide.

Aircraft Note.—Carries two Fokker C. 11 W. type seaplanes, fitted with Wright Cyclone engines, on platform abaft funnel.

Gunnery Notes.—All the 5·9 inch guns elevate to 60° and can be used as anti-aircraft weapons.

Engineering Notes.—Under tropical conditions a speed of 33 knots has been realised, only a knot below the original trial figure.

DE RUYTER. 1936, *courtesy Wilton-Fijenoord (Builders).*

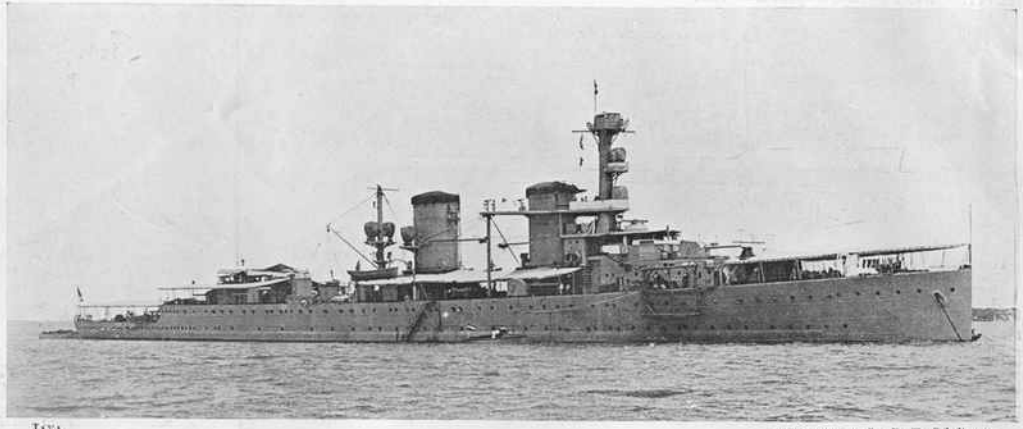
JAVA (Aug. 6th, 1921) & **SUMATRA** (Dec. 29th, 1920).

Displacement, 6670 tons.
Complement, 287 + 238 natives = 525.
Length (*o.a.*), 509½ feet. Beam, 52½ feet. *Max.* draught, 18 feet.

Guns (Bofors):
10—5·9 inch (50 cal.) "No. 6."
8—40 mm. AA. (*Sumatra*, **6**).
4—2 pdr. saluting.
6—12.7 mm. AA.
Torpedo tubes:
None.
Mines: 12.
Searchlights: 6—47 inch.
Paravanes: 4.
Range Finders: 4.

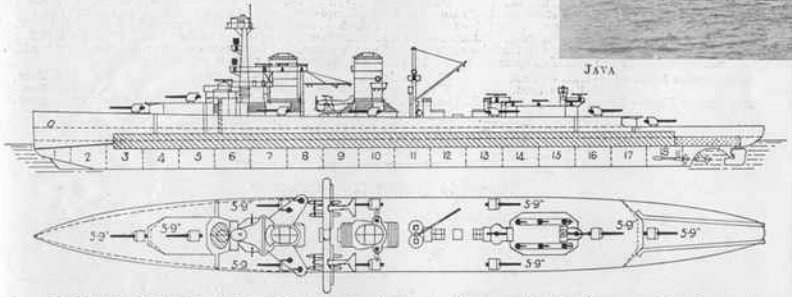
Aircraft: 2.

Armour (Coventry):
2″—3″ Belt .....
Deck { 1″ flat / 2″ slopes
4″ Gun shield faces (much thinner at sides and roof)
2″ Funnel bases ...
5″ Conning tower



JAVA

1935, *courtesy Ir. R. F. Scheltema.*



Machinery: 3 sets Krupp-Germania turbines. 3 screws. Boilers: 8 Schulz-Thornycroft. Designed H.P., 72,000 = 31 kts. Fuel, oil only: *normal*, 1000 tons; *maximum*, 1200 tons. Radius of action: 4800 miles at 12 kts., 3000 miles at 15 kts.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*	*Best recent speed*
Sumatra	Nederlandsche Scheepsbouw Maatschappij, Amsterdam	Krupp, Germania	July,'16	Nov. 1925	82,000 = 31.8	Schulz	30·3
Java	K. M. de Schelde, Flushing	Krupp, Germania*	May,'16	May 1925	73,000 = 31·5 (St. Abbs, 7/7/25)	Schulz	

* Contracted for, June, 1917.

General Notes.—The German design of these ships remains more evident than ever as the result of a big refit completed in 1935. Mainmast has been dwarfed to the stature of a derrick post and stepped in a fresh position, further forward, while a new tubular foremast, with director tower and searchlight platform, has been installed. Flag deck now extends along both sides of the fore funnel, 2 M.G. being mounted on each wing.

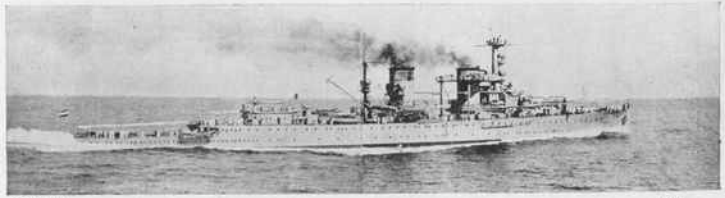
Of the two, the *Java* is decidedly the more successful ship. As the outcome of recurring engine-room troubles, a fire in 1929 and a stranding in 1931, the *Sumatra* has spent a large proportion of her life in dockyard hands. But after last refit she exceeded 28 kts. with four-fifths power at full load displacement, under tropical conditions.

Gunnery Notes.—5·9 inch guns elevate to 25–30°. Electric hoists.

Armour Notes.—C.T. divided into gunnery control and navigation compartments. 3″ belt is 392½ feet long. Towards stern and over steering gear, belt is narrower for a length of 42½ feet, and is only 2″ thick.

JAVA.

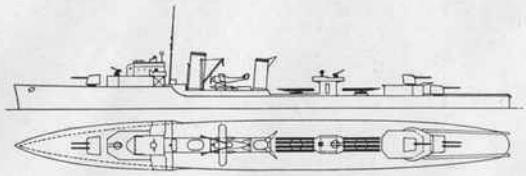
1937. *R. Perkins.*



SUMATRA.

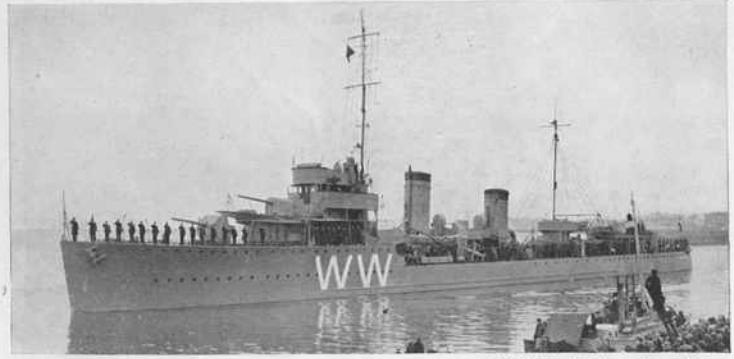
1936.

8 Destroyers (*Jagers*)



Yarrow type: ***Isaäc Sweers*** (March 16, 1940). Laid down 1938, by K. M. de Schelde at Flushing and brought to England for completion in May, 1940. Displacement: 1,628 tons. Dimensions: 348¼ × 33¾ × 11¼ feet. Guns: 5—4·7 inch, 8—40 mm. AA., 8—12·7 mm. AA., 3 D.C.T. (one for great depth). Tubes: 8—21 inch (quadrupled). Fitted for minelaying. 1 seaplane carried. Machinery: Geared turbines by Werkspoor. 2 shafts. S.H.P.: 45,000 = 36 kts. Boilers: 3 Yarrow.

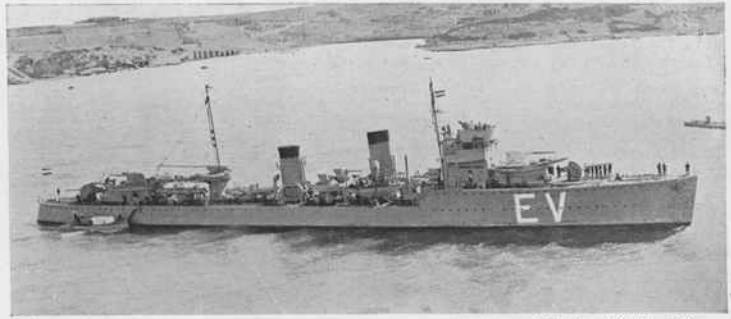
Notes.—Hull is very largely welded. Two more ships of this type, *Gerard Callenburgh* and *Tjerk Hiddes*, were blown up at Rotterdam, and a fourth ship, *Philips van Almonde*, was destroyed on the slip at Flushing in May, 1940.



WITTE DE WITH. *Added* 1935, *W. Crone, Den Helder.*

3 *Yarrow* type: ***Witte de With*** (Sept. 11, 1928), by Mij. Fijenoord, ***Banckert*** (1929), ***Van Nes*** (March 20, 1930), both by Burgerhouts. Displacement: 1,316 tons *standard*, 1,650 tons *full load*. Complement: 120. Dimensions: 307 (*pp.*), 322 (*o.a.*) × 31¼ × 10 feet (*max.* draught). Guns: 4—4·7 inch, 50 cal., 1—3 inch AA., 4—40 mm. AA., 4—12·7 mm. AA., 1 M.G. 4 D.C.T. Tubes: 6—21 inch (tripled). Machinery: Hochdruck geared turbines. 2 shafts. S.H.P.: 31,000 = 36 kts. Boilers: 3 Yarrow, 400 lbs. pressure. Oil: 330 tons.

Note.—*Van Galen*, of this type, sunk in action with German aircraft at Rotterdam, May 1940.



EVERTSEN. 1935, *Grand Studio, Malta.*

4 *Yarrow* type: ***Van Ghent*** (ex-*De Ruyter*) (Oct. 23, 1926), built by K. M. de Schelde, Flushing: ***Evertsen*** (Dec. 29, 1926), ***Kortenaer*** (June 30, 1927), ***Piet Hein*** (April 2, 1927), all three by Burgerhouts, Rotterdam. Displacement: 1,310 tons *standard*, 1,640 tons *full load*. Complement, 129. Dimensions: 307 (*p.p.*), 322 (*o.a.*) × 31¼ × 10¼ feet *max.* draught. Guns: 4—4·7 inch, 50 cal., 2—3 inch AA., 4—12·7 mm. AA., 2 M.G., 4 D.C.T. 24 mines, with double laying gear. Tubes: 6—21 inch. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 31,000 = 36 kts. *light*, 34 kts in *loaded* condition. Boilers: Yarrow, 250 lbs. pressure. Oil: 300 tons. On trials, at 80 per cent of full load displacement, speeds of from 35 to 36 kts. were realised without difficulty.

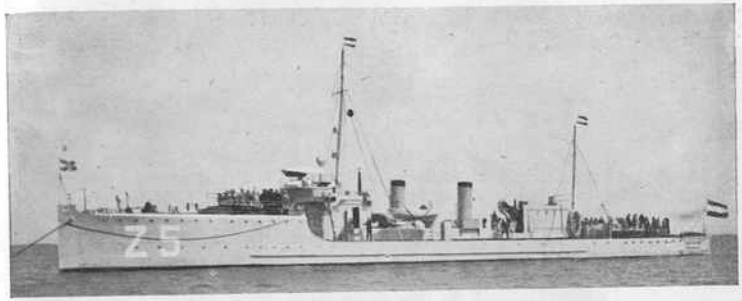
Identification letters—IS—Isaäc Sweers. EV—Evertsen. KN—Kortenaer. PH—Piet Hein.
GT—Van Ghent. WW—Witte de With. BK—Banckert. VN—Van Nes.

Appearance Notes.—First four ships have S.L. abeam of fore funnel. Later ones have S.L. *en echelon* between funnels.

Torpedo Boats (*Torpedobooten*).

1932 *Photo.*

3 boats, ***Z 5, Z 7, Z 6*** (K. M. de Schelde and Fijenoord, 1915). 263 tons. Dimensions: 193 × 19¾ × 5¼ feet. Guns: 2—3 inch, "No. 4," 2 Machine. Torpedo tubes: 4—17·7 inch (one twin and 2 single deck mountings). Designed H.P.: 5,000 to 5,500 = 27 kts. (made about 27·4 on trials). Machinery: Reciprocating. Boilers fitted to burn coal or oil. Carry 80 tons coal + 7 tons oil. Radius of action: 425 miles at 20 kts. Complement: 48. Completed 1916.



Z5. 1932 *Photo.*

Z 5 (De Schelde, Vlissingen, 1913). 263 tons. Dimensions: 193 × 19·8 × 5·6 feet. Guns: 2—3 inch, 2 M.G. I.H.P.: 3,000 = 22 kts. Oil fuel: 100 tons. Complement: 34.

Notes.—Originally as *Z 8*. Refitted for patrol work 1932, with lengthened forecastle; foremost boiler removed: additional bunker space. Is employed as a Tender.

G 13. 1919 *Photo, Fotopersbureau "Holland," Amsterdam*

2 boats: ***G 15*** (Fijenoord Co., Rotterdam, 1914), ***G 13*** (K. M. de Schelde, Flushing, 1913). 180 tons. Dimensions: 162·4 × 17 × 4·6 feet. Armaments: 2—3 inch, "No. 4," 3—17·7 inch deck tubes. Designed H.P.: 2,600 = 25 kts. (26 kts. on trials). Coal: 44 tons. Complement: 27.

G 13 used as Stokers' Training Ship. G 15 used as Tender.

Motor Type.

T.M. 51 (British Power Boat Co., Ltd. 1939). Wood. Displacement: 32 tons (37 tons *full load*). Dimensions: 76 (*o.a.*) × 20 × 4½ feet. Armament: 2—20 mm. guns, 4—18 inch tubes, 6 D.C. Machinery: 3 Rolls-Royce Merlin petrol engines. H.P.: 3,000 = 42·5 kts. Complement: 9.

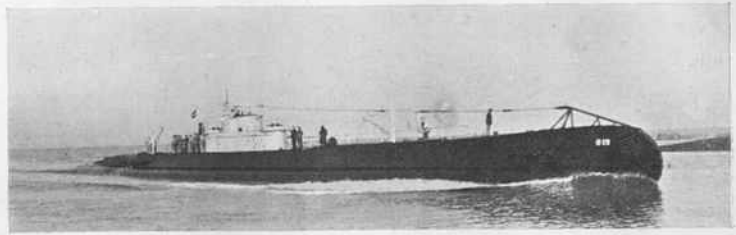
(19 more of this type were being built by Werf Gusto, Schiedam, but were destroyed after invasion.

T.M. 1 (Soerabaia, 1937–38) and 11 more, building or completing in E. Indies. Steel. Displacement: 15 tons. Dimensions: 61 × 12½ × 4 feet. Armament: 4 M.G. 2—18 inch tubes, and D.C. Machinery: 3 petrol engines H.P.: 1,260 = 38 kts. Complement: 6.

Submarines

Notes.—Formerly "*O*" numbers were for Home Service; "*K*" numbers for East Indies, but this distinction no longer holds good. Displacements given are *standard*. All are double-hull design except *K 7*.

4 boats: ***O 21*** (Oct. 21, 1939), ***O 22*** (Jan. 20, 1940), (both by K. M. de Schelde), ***O 23*** (Dec. 5, 1939), ***O 24*** (March 18, 1940) (both by Rotterdam Dry Dock Co.). All laid down during 1937–38, for completion in 1940–41. Displacement: 888/1,380 tons. Complement: 38. Dimensions: 255 × 21¼ × 13 feet. Armament: 1—3·5 inch gun, 2—40 mm. AA., 1—12·7 mm. AA., 8—21 inch tubes (4 bow, 2 stern, 2 deck). 2 Sulzer Diesels, by K. M. de Schelde. B.H.P.: 5,200 = 19·5 kts. *Submerged* B.H.P.: 1,000 = 9 kts. All were originally to have been given "K" numbers. *O 25-27* of this type, were destroyed on slips, except ***O 25,*** which was launched May, 1, 1940, and scuttled later.



O 19. 1939, *Werner Crone.*

2 *Minelaying* type: ***O 19*** (ex-*K* 19), (Sept. 22, 1938), ***O 20*** (ex-*K* 20), (Jan. 31, 1939). Laid down in 1936 by Wilton-Fijenoord at Schiedam. Displacement: 967/1,468 tons. Complement: 38. Dimensions: 264½ × 23¼ × 12½ feet. Armament: 1—3·5 inch gun, 2—40 mm. AA., 1—12·7 mm. AA., 8—21 inch tubes, 40 mines. 2 Sulzer Diesels by builders. B.H.P. 5,300 = 20 kts. *surface*. *Submerged* B.H.P.: 1,000 = 9 kts.

1937, *courtesy Ir. R. F. Scheltema.*

1 boat: ***O 16*** (Kon. Mij. de Schelde, Jan. 27, 1936). Displacement: 896/1,200 tons. Dimensions: 254½ × 21¼ × 13 feet. Guns: 1—3·5 inch, 2—40 mm. AA. Tubes: 8—21 inch (4 bow, 2 stern, 2 deck). 2 M.A.N. Diesels. H.P. 3,200/860 = 18/0 kts. Complement: 38.

O 12. 1932 *Photo, Chef. Kreuger.*

2 boats: ***O 13*** (Nov. 8, 1930), ***O 14*** (1931). All by K. M. de Schelde. Ordered 1927–28. Displacement: 546/704 tons. Dimensions: 198¼ (*o.a.*) × 17⅞ × 11½ feet. 2 Sulzer Diesels. H.P.: 1,800/600 = 15/8 kts. (Trials gave 16 kts. *surface* easily.) Armament: 5—21 inch tubes (4 bow, 1 stern), 2—40 mm. AA. guns, mounted in watertight tube in C.T. Radius: 3,500 miles at 10 kts. *on surface*; 26 miles at 8 kts *submerged*. Complement: 31.

1 boat: ***O 15*** (Fijenoord, 1931). (Ordered 1929). Similar to above, but M.A.N. Diesels.

Note.—*O* 12 and *O* 14 made the passage from the Netherlands to the East Indies in 1937 with only one port of call.

O 12 (illustrated above) was refitting at time of German invasion, and is believed to have been destroyed.

K 17. 1933 *Photo.*

3 boats: ***K 14*** (July, 1932), ***K 15*** (Dec., 1932), ***K 16*** (April, 1933). Ordered 1929–30, Rotterdam Dry Dock Co.

2 boats: ***K 17*** (July, 1932), ***K 18*** (Sept., 1932). Ordered 1929–30, M. Fijenoord.

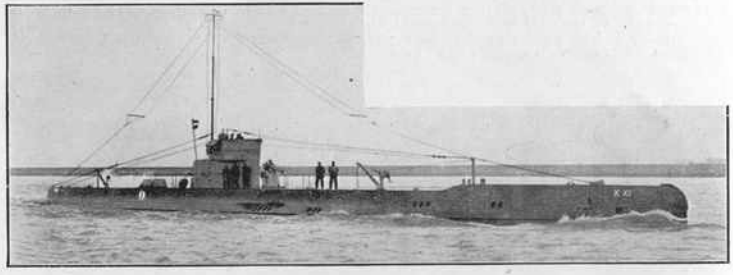
Displacement: 771/1,008 tons (first 3); 782/1,024 tons (last 2). Dimensions of all: 242½ (*o.a.*) × 25 × 12¾ feet. H.P. 3,200/1,000 = 17/9 kts. Armament: 8—21 inch tubes (4 bow, 2 stern, 2 deck), 14 Torpedoes carried, 1—3·5 inch gun, 2—40 mm. AA. Radius: 3,500 miles at 11 kts., 26 miles at 8·5 kts. Complement: 38. Diving limit: 44 fms.

Note.—On Trials these boats made 19 kts. *K* 18 accomplished a record passage for an unescorted submarine, from the Netherlands to the East Indies via South America and Western Australia, a distance of 23,000 miles. She proved herself an excellent sea-boat.

O 9. 1926 *Photo, Ir. R. F. Scheltema.*

2 *Navy* (Home Service) type: ***O 10*** (Nederlandsche Scheepsbouw, 30th July, 1925), ***O 9*** (K. M. de Schelde, 1925). Displacement: 483 tons *on surface*, 647 tons *submerged*. Dimensions: 179½ (*o.a.*) × 17½ × 11¾ feet. Engines: 2 sets Sulzer Diesels, total H.P.: 900 = 12 kts. *on surface*. *Submerged* speed: 8 kts. Armament: 1—3·5 inch, 1 M.G., and 5 torpedo tubes (2—21 inch and 2—17·7 inch in bow; 1—17·7 inch in stern). 10 torpedoes carried. Provided for under 1917 Programme. Complement: 29. Diving limit: 33 fathoms.

Note.—*O* 11 was sunk by collision at Den Helder in March, 1940, but was salved, and was under repair when country was invaded. She is believed to have been destroyed.



1925 *Official Photo, by courtesy of Chief of Naval Staff, The Hague.*

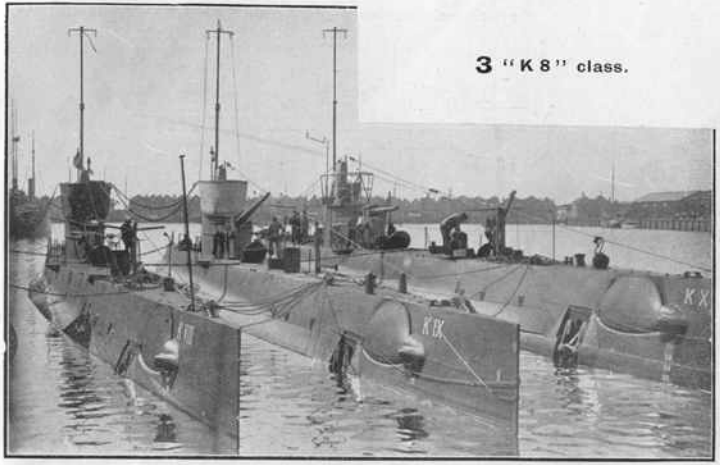
3 *Navy* type: ***K 13*** (Dec., 1924), ***K 12*** (Nov., 1924), ***K 11*** (April, 1924), all by M. Fijenoord, Rotterdam. Displacement: 611 tons *on surface*, 815 tons *submerged*. Dimensions: 218¾ (*o.a.*) × 19 × 12½ feet. Engines: 2 sets, M.A.N. Diesels, each 1,200 B.H.P. = 15 kts. *surface* speed (17 kts. reached on trials.) *Submerged* speed: 8 kts. Armament: 1—3·5 inch, 1—12·7 mm., 2—21 and 4—17·7 inch tubes (2 of each calibre in bow, 2—17·7 inch in stern). 12 Torpedoes carried. Complement: 31. Provided for under 1918 Naval Programme. Diving limit: 33 fathoms.

Note.—*K* 13 completed the voyage from Amsterdam to Soerabaja, via the Panama Canal, unescorted, without mishap. Period occupied was from May 27 to Dec. 12, 1926.

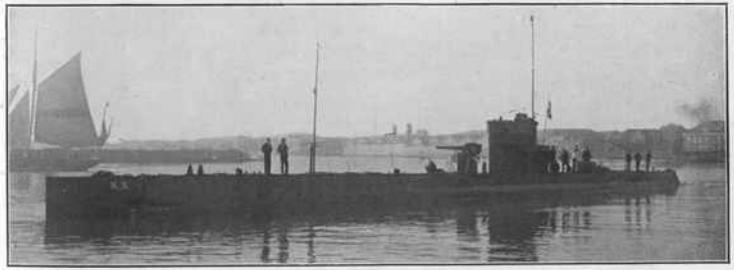
K 5 (of same type, now scrapped). 1921 *Photo by courtesy of the Chief of Naval Staff, Batavia.*

1 *Hay-Denny* type: ***K 7*** (Mar. 8, 1920), (M. Fijenoord, Rotterdam). Displacement: 507/639 tons. Dimensions: 177 (*p.p.*), 188 (*o.a.*) × 16½ × 12½ feet. Machinery: 2 sets Sulzer Diesels. H.P.: 1,200 = 13·5 kts. *surface*. *Submerged* speed: 8 kts. Guns: 1—3 inch, 1—12·7 mm. AA. Tubes: 6—17·7 inch (2 bow, 2 stern, 2 deck). Begun 1916, completed 1922. Diving limit: 22 fathoms.

3 "K 8" class.



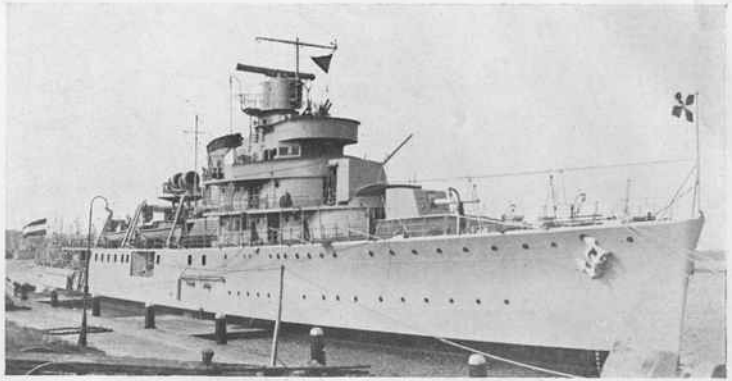
K 8, 9, 10. 1925 *Photo, by favour Ir. R. F. Scheltema*



K 10. 1926 *Photo, Ir. R. F. Scheltema.*

3 *Electric Boat Co.* design: ***K 10*** (May, 1922), ***K 9*** (1922), and ***K 8*** (1922), all by K. M. de Schelde. Displacements: 521 tons on *surface*, 712 tons *submerged*. Dimensions: 210¾ (*o.a.*) × 17¾ × 11¼ feet. Armament: 1—3·5 inch AA., 1—12·7 mm. AA., 4—17·7 inch tubes (2 bow, 2 stern). Machinery: *K 8* has two sets of M.A.N. Diesels, H.P.: 1,800, while *K 9* and *K 10* have 2 Schelde-Sulzer type, H.P.: 1,500, for a *surface* speed of 15 kts. (16 reached *on trials*.) Electric motors B.H.P.: 630 = 9·5 kts., *submerged* speed. Endurance about 3,500 miles at 11 kts. *on surface*, 26 miles at 8·5 kts., *submerged*. Complement: 31. Diving limit, 22 fathoms.

Gunnery Training Ship.

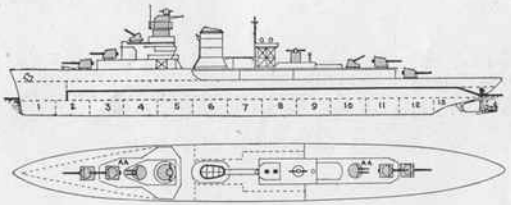


1939, *Werner Crone.*

VAN KINSBERGEN (January 5, 1939). *Standard* displacement: 1,760 tons (2,100 tons *full load*). Complement: 190. Dimensions: 338 (*o.a.*) × 38 × 11 feet.

Guns:
4—4·7 inch.
4—40 mm. AA. (twin mounts).
4—12·7 mm. AA. (twin mounts).

Armour:
Possesses some slight protection, probably confined to armoured deck and C.T.



Machinery: Geared turbines by Gebr. Stork. S.H.P.: 16,000 = 25·5 kts. Boilers: 2 Yarrow

Note.—Ordered Nov. 1936 from Rotterdam Dry Dock Co. Relieved *Gelderland* when completed, in August, 1939.

1937, *Official*.

SOERABAJA, (*ex-De Zeven Provincien*) (March, 1909).
Displacement: 5,644 tons. Complement: 180 + 300 cadets and boys.
Length (*o.a.*), 333 feet. Beam, 56 feet. *Maximum* draught, 20¼ feet.

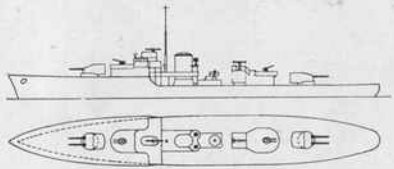
Guns (Krupp):
2—11 inch, 42½ cal.
2—3 inch, 55 cal. S.A. "No. 1."
6—40 mm. A.A.
6 machine.
Torpedo tubes:
None.

Armour (Krupp):
6″ Belt (amidships)
4″ Belt (ends)
2″ Deck (on slopes)
9⅜″ Main Barbettes (N.C.)
9⅜″ Shields
4″ Small Barbettes
7¾″ Conning tower (N.C.)

Machinery: 2 sets triple expansion. 2 screws. Boilers: 3 Yarrow. Designed H.P.: 8,000 = 16 kts. (Trials: 8,516 = 16·3 kts.) (with 8 original boilers). Fuel now oil only.

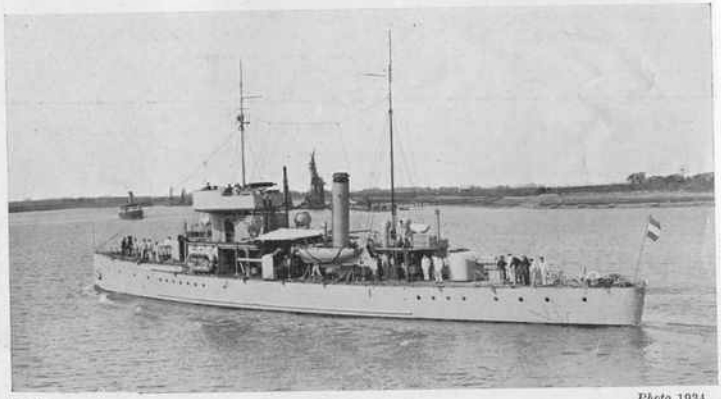
Notes.—Main belt is 7 feet wide. Laid down Feb., 1908, at Amsterdam D.Y. No longer counted on effective list. Renamed Oct. 21, 1936, and fitted out as a Training Ship. Stationed in E. Indies.

Armoured Gunboats (*Kanonneerbooten*).

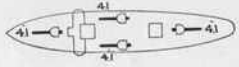


7 Gunboats were to have been built, three of which were ordered in 1938 (2 from Smit, Rotterdam, 1 from Gusto, Schiedam). Displacement: 1,268 tons. Dimensions: 255½ × 33½ × 9½ feet. Guns: 4—4·7 inch, 4—40 mm. AA., 4—12·7 mm. AA., 2 D.C.T. Machinery: Burmeister & Wain Diesels by P. Smit Jr. B.H.P.: 3,500 = 18 kts.

Note.—All 3 hulls were destroyed after German invasion. The fourth vessel of this type was to have been laid down in 1940.



GRUNO *Photo* 1934.



GRUNO (1913). Built by Amsterdam D.Y. 540 tons. Complement: 52. Dimensions: 172½ (*o.a.*) × 28 × 9¼ feet *max.* draught. Armament: 4—4·1 inch semi-automatic, 1—12·7 mm. AA., 2 M.G. Armour: 2″ belt, ⅝″ deck, 2″ conning tower. Machinery: 2 sets Sulzer Diesels (new in 1934). B.H.P.: 1,500 = 14 kts. Oil: 34 tons. Complement: 63. *Friso*, of this type, sunk in action with German aircraft in Zuider Zee, May, 1940. *Brinio*, engaged on same occasion, missing and believed sunk.

Sloops (Classed as *Kanonneerbooten*).

SOEMBA. 1926 *Photo. by courtesy of Chief of Naval Staff.*

FLORES (15th Aug., 1925), **SOEMBA** (24th Aug., 1925). Built at Rotterdam by M. Fijenoord and Wiltons, respcetively. Displacement: 1457 tons. Dimensions: 248 × 37½ × 11¾ feet. Guns: 3—5·9 inch, 1—3 inch AA., 4—12·7 mm., AA., 4 M.G. Machinery: 2 sets triple expansion, H.P. 2000 = 15 kts. 4 Yarrow boilers. Oil: 285 tons. Complement, 132.

Note.—These Vessels have a 1" armoured deck and C.T. They are fitted with Flettner rudders and have accommodation for a seaplane.

Submarine Chasers.

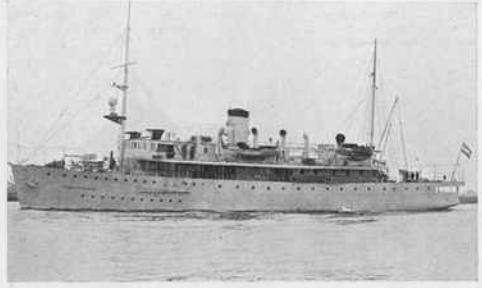
6 ordered Jan., 1940 (3 from Smit, 3 from Nederlandsche Dok Mij.). (12 more authorised.) Displacement: 383 tons. Complement: 49. Dimensions: 210 (*pp.*), 213 (*o.a.*) × 22½ × 6¼ feet. Guns: 4—40 mm. AA., 60 D.C. carried. Fitted for minesweeping. Machinery: Parsons geared turbines by Stork. S.H.P.: 5,500 = 24 kts. Hulls destroyed after invasion.

Mine Layers (*Mijnenleggers*).

1939, *Ben G. Kool, DenHelder.*

WILLEM VAN DER ZAAN (Dec. 15, 1938). Laid down 1937 by Netherland Dry Dock Co. *Standard* displacement: 1,300 tons. Complement: 92 as minelayer, 130 as training ship. Dimensions: 229¾ (*pp.*), 247 (*o.a.*) × 36¾ × 11 feet. Guns: 2—4·7 inch, 50 cal., 4—40 mm. AA. (twin mounts), 4—12·7 mm. AA. (twin mounts). (120 mines). Machinery: 2 sets triple expansion. H.P.: 2,200 = 15·5 kts. Boilers: 2 Yarrow. During peace time is employed as Seagoing Training Ship for Cadets and Midshipmen. Equipment includes a seaplane and derrick. Completed, Aug., 1939.

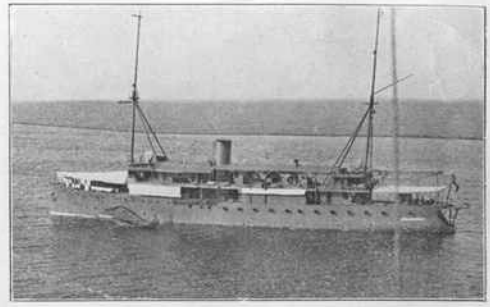
Motorloodsvaartuig No. 1 (N. V. Boele's Scheepwerven, Bolnes, June 24, 1939). Displacement: 555 tons. Dimensions: 163 × 28½ × 11 feet. Machinery: Stork Diesel. B.H.P.: 1,150 = 14 kts.



PRINS VAN ORANJE. 1932 *Photo.*

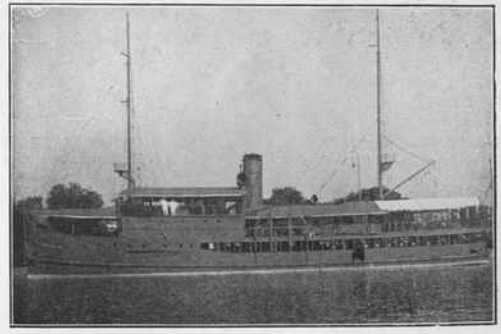
PRINS VAN ORANJE (Aug., 1931), **GOUDEN LEEUW** (Sept., 1931). Both built by N. V. Scheepsbouw Mij. De Maas, Slikkerveer. Displacement: 1,291 tons. Dimensions: 216 × 36 × 11 feet. Guns: 2—3 inch AA., 2—40 mm. AA., 2—12·7 mm. AA., 2 M.G. H.P.: 1,750 = 15 kts. Complement: 121.

Mine Layers—*continued.*



1929 *Photo, by courtesy of Chief of Naval Staff.*

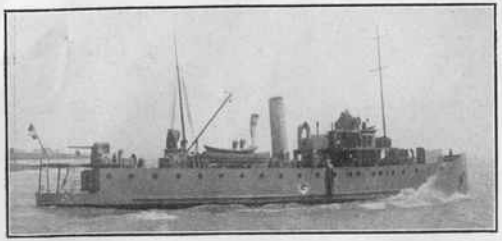
KRAKATAU (Soerabaja D.Y., 1924). Displacement, 982 tons. Dimensions: 213×34½×10½ feet. Guns: 2—3 inch AA., 4 M.G. H.P.: 2,500 = 15·5 kts. Complement: 91. Reconstructed 1928, after funnel being removed. Foundered in 1932 through stern mine ports being left open while steaming at full speed in shallow water. Salved and refitted same year.



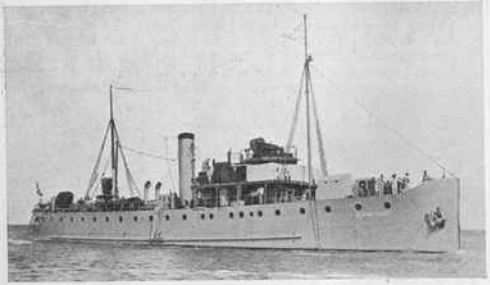
PRO PATRIA. 1926 *Photo, by courtesy of Chief of Naval Staff.*

PRO PATRIA (Soerabaja D.Y., July 21, 1922). Displacement, 537 tons. Dimensions: 154×28½×9¼ feet. Guns: 1—3 inch A.A., 2 M.G. H.P.: 650 = 10 kts. Complement: 61. (Serving at present as depot ship for torpedo craft.)

Mine Layers—*continued*



VAN MEERLANT. 1926 *Photo, by courtesy of Chief of Naval Staff.*

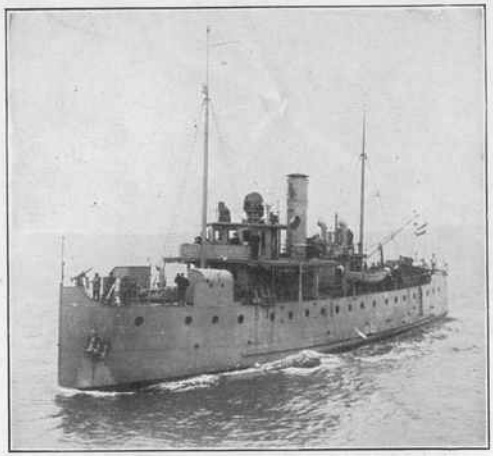


DOUWE AUKES. 1933 *Photo.*

VAN MEERLANT (Nov. 24th, 1920), **DOUWE AUKES** (Feb. 23, 1922). First built under 1917 Programme and the second under 1918 Programme, by Werf Gusto, Schiedam. Displacement: 687 tons. Dimensions: 180½ × 28½ × 10½ feet. Guns: 3—3 inch AA., 2—12·7 mm. AA., 2 M.G. Twin screws. Engines: 2 sets triple exp. surface condensation. I.H.P.: 1,000 = 13 kts. Coal: 115 tons. Complement: 60.

Of the same type as *Medusa* (see following column), but faster. 2 steam winches for handling mines and double laying gears.

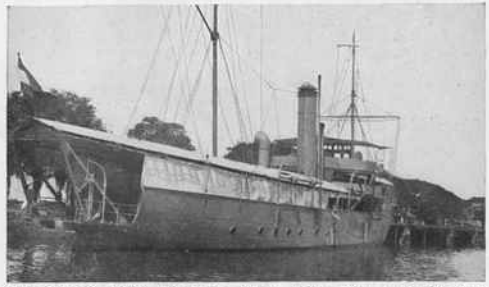
Mine Layers—*continued.*



1918 *Photo, Fotopersbureau "Holland."*

MEDUSA (1911). Built at Amsterdam D.Y. Displacement: 593 tons. Complement: 53. Dimensions: 163 × 29½ × 9 feet. Guns: 2—3 inch AA., 1—3 inch S.A., 2—12·7 mm. AA., 1 M.G. Designed H.P.: 800 = 12 kts. Coal: 72 tons. Radius of action: 1,440 miles at 6 kts.

Note.—A sister ship, the *Hydra*, sank off the "Wielingen" Light Ship by collision with T.B. *Z 3*, Feb., 1921; salved April, 1921, but was ultimately lost in action with German aircraft in Zuider Zee in May, 1940.



SERDANG (1897), 680 tons. About 173½ × 31½ × 12 feet average. Armament: 2—1 pdr., 4 M.G. H.P.: 1,290 = 13 kts. Coal: 150 tons. Complement: 97 (55 Europeans, 42 natives). Double minelaying gear fitted. Serves as seagoing tender to Torpedo School.

Mine Sweepers. (*Mijnenvegers.*)

A. VAN DER HULST. 1938, *Ir. R. F. Scheltema.*

JAN VAN AMSTEL (Aug. 27, 1936), **PIETER DE BITTER** (Oct. 29, 1936), both by Smit, Rotterdam; **ABRAHAM CRIJNSSEN** (Sept. 22, 1936), **ELAND DUBOIS** (Oct. 24, 1936), both by Werf Gusto, Schiedam; **JAN VAN GELDER** (April 17, 1937) by Werf Gusto. 4 more of this type were ordered from Smit in 1939, and 2 more were authorised in April, 1940. Displacement: 525 tons. Complement: 46. Dimensions: 183 × 25½ × 7 feet. Guns: 1—3 inch, 55 cal. in first 4, 40 cal. in others, 4—12·7 mm. AA., 1 M.G. H.P.: 1,690 = 15 kts. Oil fuel: 110 tons. Are also equipped for mine laying.

Notes.—All reached 16 kts. on trials. Are lettered on side with initials of each surname A to H. *Willem van Ewijck*, of this class, sunk through striking a mine off Terschelling, Sept. 8, 1939. *Pieter Florisz* and *Abraham van der Hulst* both missing and feared lost during resistance to German invasion, May, 1940.

1934 *Photo.*

A, B, C, D. (Willemsoord D.Y., Den Helder, 1929–30). Displacement: 179 tons. Dimensions: 140½ × 19¾ × 5 feet. 2 M.G. H.P.: 700 = 14·5 kts. Oil: 40 tons. Complement: 30.

Mine Sweepers—*continued.*

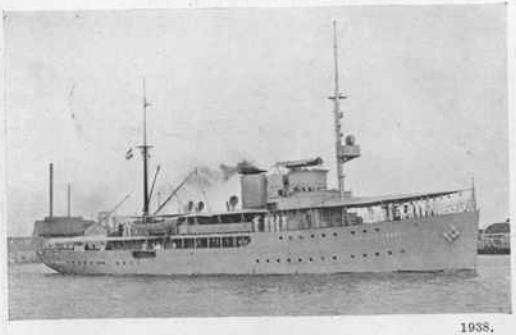
1934 *Photo.*

M 1 (Van der Kuyk en Ree, Rotterdam). 238 tons.
M 3 (v.d. Schuyt, Papendrecht). 230 tons. Completed and taken over in 1916. Steel. Dimensions: 92 × 20½ × 10 feet. Speed: 10 kts. Guns: 1 machine. Complement: 16.

Submarine Depot and Repair Ship.

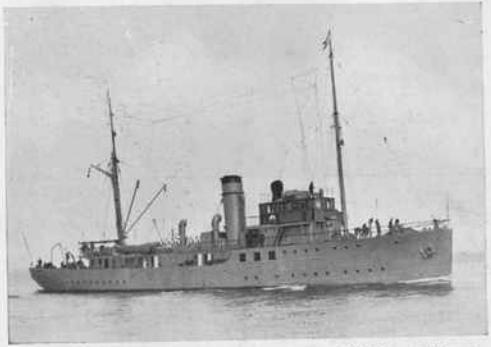
CORNELIS DREBBEL (1915). 668 tons. Dimensions: 166·8 × 32·8 × 6·8 feet. Guns: 1—1 pdr. Diesel engines. 3 shafts. B.H.P.: 170 = 6 kts. Oil fuel: 71 tons. Complement: 73. Built by Werf Conrad, Haarlem. (Fate uncertain.)

Fishery Protection Vessels.



1938.

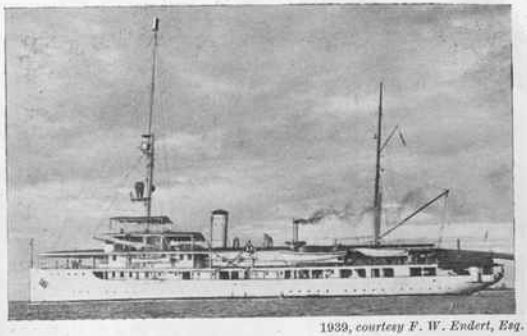
JAN VAN BRAKEL (K. M. de Schelde, Feb. 8, 1936). Displacement: 740 tons, *standard*, (*full load* 955 tons). Dimensions: 181½ × 30 × 10 feet *mean*, 13 feet *max*. Guns: 2—3 inch, 1—37 mm., 4—12·7 mm. AA. Fitted for minelaying. Machinery: Triple expansion. 2 shafts. H.P.: 1,600 = 15 kts. 2 Yarrow boilers. Oil fuel. Complement: 65.



1930 *Photo, by courtesy of Ministry of Defence.*

NAUTILUS (Oct. 30th, 1929). Built by Rotterdam Dry Dock Co. Displacement: 800 tons. Dimensions: 180½ (*p.p.*), 191½ (*o.a.*) × 31 × 11¼ feet. Guns: 2—3 inch, 1—37 mm., 2—40 mm. AA. H.P.: 1,350 = 14 kts. Oil: 138 tons. Complement: 50. (This vessel is used on Fishery Protection duties. She is fitted to carry mines. 3 inch guns not mounted at present.)

Surveying Vessels.



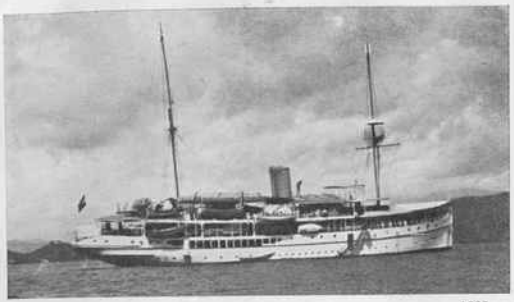
1939, *courtesy F. W. Endert, Esq.*

WILLEBRORD SNELLIUS (Fijenoord Co., Aug. 14th, 1928.) Displacement: 930 tons. Dimensions: 190 (*p.p.*). 203½ (*o.a.*) × 31½ × 11½ feet. H.P. 525 = 10·5 kts. Oil 190 tons. Guns: 1—3 inch, 2—1 pdrs., 2 M.G. Complement: 85.

EILERTS DE HAAN. 1932 *Photo, Chef Kreuger.*

EILERTS DE HAAN (25th June, 1919). Fijenoord Co. Rotterdam. 312 tons. Dimensions: 147·3 × 21·9 × 7 feet. No guns. Designed H.P. 600 = 12 kts. Coal: 44 tons. Complement, 18. Begun under 1915 Naval Programme. Completed May, 1921.

Surveying Vessels—*continued.*



1936

TYDEMAN (Soerabaja D.Y., 1916). 1,160 tons. Dimensions: 226·4 × 32·8 × 11·8 feet. Guns: 1—3 inch, 2—1 pdrs., 2 M.G. Diesels. H.P.: 700 = 10 kts. 2 screws. Oil: 194 tons. Complement: 104.

HYDROGRAAF (1911). 300 tons. Dimensions: 132·7 × 21·9 × 9·6 feet. Guns: none. I.H.P. 360 = 9 kts. Coal: 30 tons. Complement: 18. (Similar in appearance to *Tydeman*.)

Salvage Vessel.

Photo wanted.

CASTOR (Soerabaja, 1915). Displacement: 670 tons. Complement: 43. Dimensions: 163 × 32¾ × 10 feet. Machinery: Diesel. B.H.P.: 500 = 8·5 kts. (Was formerly a Lighthouse Tender).

Oiler.

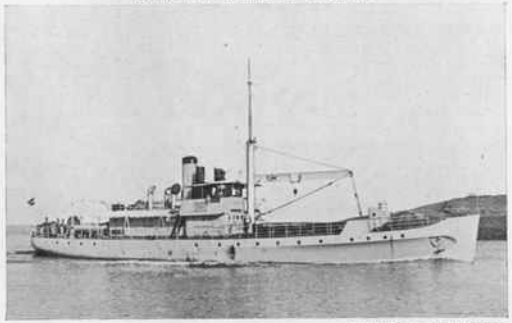
1 building at Wimpen. Displacement: 6,900 tons. Dimensions: 410 × 53 × 24 feet. Guns: 2—4·7 inch, 2—40 mm. AA. Machinery: Werkspoor Diesel. B.H.P.: 7,000 = 16·5 kts. Probably destroyed in berth. (A second oiler was to have been ordered in 1940.)

Fleet Supply Ship.

1939, *courtesy F. W. Endert, Esq.*

ZUIDERKRUIS (1923). 2,660 tons. Dimensions: 256 × 36¾ × 14¼ feet. Machinery: Triple expansion. 2 shafts. I.H.P.: 1,600 = 12·5 kts. Complement: 97. (Was formerly a cable ship attached to Gouvernementsmarine.)

Tenders. (*Existence doubtful*).



1939, *Ir. R. F. Scheltema.*

(*Rated as Torpedo Transport*).

MERCUUR (Feb. 26, 1936). Displacement: 265 tons *standard*, 284 tons *full load*. Dimensions: 137½ (*p.p.*), 140 (*o.a.*) × 23 × 9 feet No guns. H.P. 325 = 12 kts.

MOK I (Den Helder, 1939). Displacement: 177 tons. Dimensions: 114 × 20½ × — feet. Machinery: 2 Diesels. B.H.P.: 400 = 12 kts. (Communication tender.)

MOK II (1939). Displacement: 83 tons. Dimensions: 88½ × 16½ × — feet. Machinery: 1 Diesel with Voith-Schneider propeller. B.H.P.: 230 = 11 kts. (Communication tender).

D I (Den Helder, 1939). Displacement: 49 tons. Dimensions: 72 × 14½ × — feet. Machinery: 2 Kromhout-Gardner Diesels. B.H.P.: 120 = 10 kts. (Diving tender).

There is also a Torpedo Recovery Tender (British Power Boat Co., 1938), of 6 tons, 37½ feet long, with two petrol motors, H.P. 400 = 34 kts.

Note—One of above tenders was lost during Dunkirk withdrawal operations, May, 1940.

Sail Training Ship. (*Fate uncertain*).

1938.

URANIA. Schooner used for training of cadets in seamanship.

Vessels in Netherland East Indies.

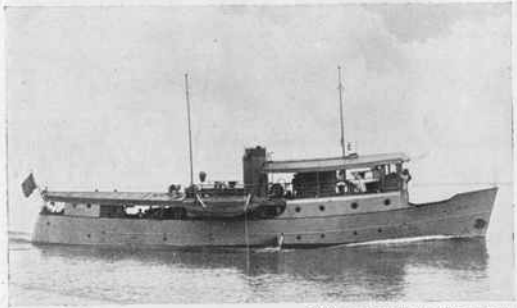
1. The following ships of the Royal Netherland Navy are stationed in East Indies: *De Ruyter, Java, Tromp*, 7 destroyers; K7 to K18, O16, O19, O20; TM3 and others of this type; *Flores, Soemba, Krakatau, Pro Patria, Serdang, Prins van Oranje, Gouden Leeuw*; Minesweepers *A, B, C, D, Jan van Amstel, Pieter de Bitter, Abraham Crijnssen, Eland Dubois; Snellius, Tydeman, Soerabaja, Zuiderkruis, Castor*.
2. To the Naval Department in the East Indies is also attached the "Gouvernementsmarine," a civil force, which is the property of the East Indies Government, and in peace time is used for Customs and Police Duties, &c. Most of its vessels, particulars of which appear below, mount one or two 3 inch guns. The personnel is enlisted in the Naval Reserve and the ships are attached to the Navy in time of war.

New Construction

2 Minelayers authorised Feb. 1940. Displacement: 2,200 tons. Length: 279 feet. H.P.: 4,500 = 18 kts.

4 Patrol Vessels laid down at Soerabaja, 1939. Displacement: 328 tons. Dimensions: 205 × 20 × 6½ feet. Guns: 1—3 inch, 4—40 mm. AA. Machinery: Diesel. B.H.P.: 5,000 = 24 kts.

3 Launches, dimensions: 72 × 14½ × 7¼ feet, speed: 10 kts.; and 3 Launches, length: 78¾ feet, speed: 12 kts., are also building.



AROE. 1939, *courtesy F. W. Endert, Esq.*

AROE, BANTAM, BOERCE, BOGOR, CERAM, CHERIBON, DIGOEL (1937). Displacement: 200 tons. Dimensions: 104 × 18 × 8½ feet. Machinery: Diesel. B.H.P.: 350 = 12 kts.

Photo wanted.

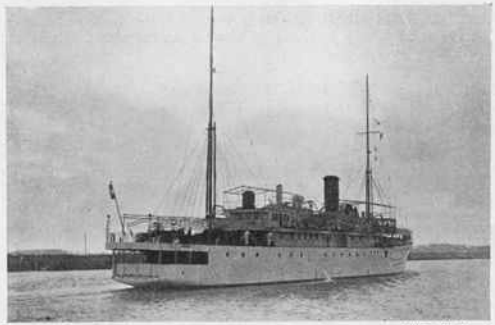
FAZANT, REIGER (Soerabaja, 1930–31). Displacement: 624 tons. Complement: 40. Dimensions: 156¾ × 27½ × 9¼ feet. I.H.P.: 525 = 12 kts.

MEREL (Soerabaja, 1927). Similar to above, but 592 tons and 152¼ feet in length.

AREND. 1933 *Photo.*

AREND (May 21, 1929), **VALK** (Oct. 19, 1929). Both built by Fijenoord Co. for fishery protection duties in East Indies. Displacement: 1,011 tons. Dimensions: 229½ *p.p.*, 236 *o.a.* × 29½ × 9½ feet. H.P.: 3,350=18 kts. Guns: 2—3 inch., 2 M.G. Complement: 61. Equipment includes a seaplane (not carried in peace time).

Note.—Meaning of these names is "Eagle" and "Falcon."

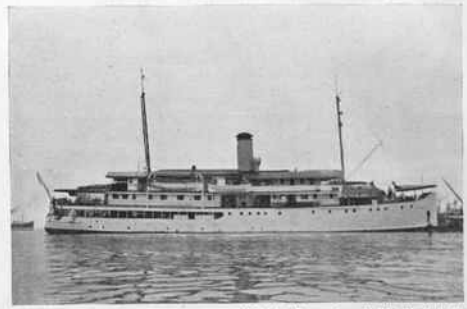


Height of masts is being reduced. 1937, *W. Crone.*

(Fitted for minelaying).

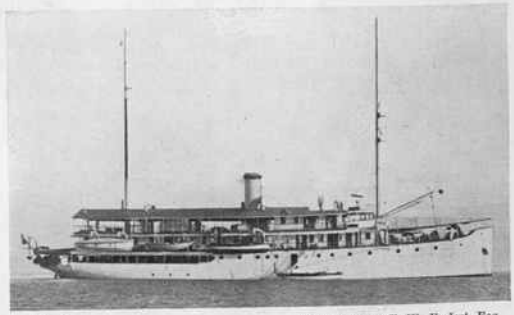
RIGEL (Nederlandsche Dok Mij, 1929). Displacement: 1,631 tons. Dimensions: 221½ (*pp.*), 242¾ (*o.a.*) × 36¼ × 10 feet. Guns: 2—3 inch, 2—12·7 mm. AA. Machinery: Triple expansion. H.P.: 1,400 = 12·5 kts. Complement: 63. Specially fitted for use of the Governor-General of East Indies.

Note.—Another vessel of this type was to have been laid down in 1939.



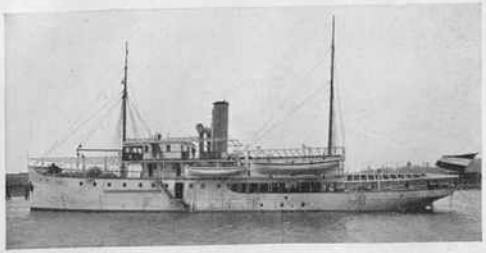
Added 1940, *courtesy F. W. Endert, Esq.*

FOMALHOUT (Soerabaja, 1923). Displacement: 1,000 tons. Complement: 55. Dimensions: 186 × 31 × 11 feet. I.H.P.: 855 = 13·4 kts. (trials).



SIRIUS. 1939, *courtesy F. W. Endert, Esq.*

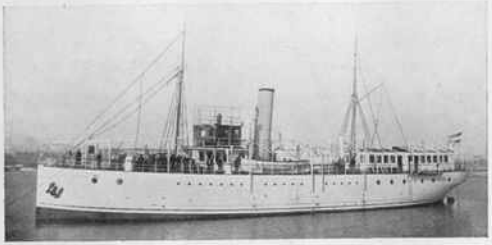
SIRIUS, WEGA (Gorinchem, 1922). Displacement: 1,015 tons. Complement: 50. Dimensions: 182½ × 31 × 10¾ feet. I.H.P.: 900 = 12·8 kts. (trials).



GEMMA. *Official Photo, added* 1934.

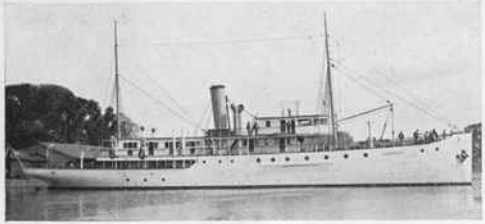
GEMMA (A. F. Smulders, Schiedam, 1918). Displacement: 845 tons. Dimensions: 175 × 29½ × 10½ feet. I.H.P.: 800 = 12 kts. Complement: 44.

ERIDANUS (Soerabaja, 1919). Displacement: 996 tons. Dimensions: 185½ × 29½ × 11½ feet. Otherwise as *Gemma*.

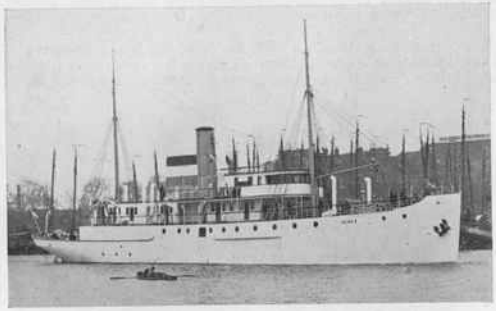


ALBATROS. *Official Photo, added* 1934.

ALBATROS (1912). Built at Vlissingen. Displacement: 892 tons. Dimensions: 164 × 31 × 10¾ feet. I.H.P.: 1,140 = 12·4 kts. Complement: 47.



CANOPUS. (Described in next column). *Official Photo, added* 1934.



DENEB. *Official Photo, added* 1931.

DENEB (1915). **CANOPUS** (1914).

BELLATRIX (1914).

Displacement: 773 tons. Dimensions: 175 × 29½ × 10 feet. I.H.P.: 800 = 12·3 kts. Complement: 45. All built at Rijks-Marinewerf, Amsterdam.

ALDEBARAN (1913). Displacement: 892 tons. Dimensions: 175 × 27 × 11½ feet. Otherwise as above three. Built at Soerabaja.

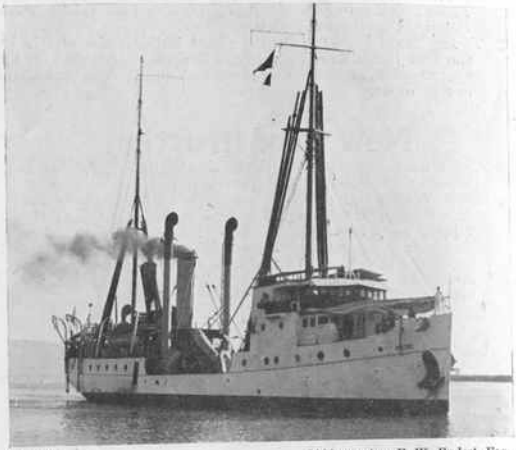
ORION (Soerabaja, 1912). Displacement: 1,062 tons. Complement: 71. Dimensions: 183½ × 29½ × 12 feet. I.H.P.: 1,380 = 14 kts.

Lighthouse Service.

Photo wanted.

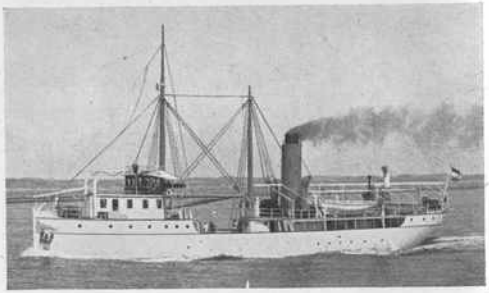
POOLSTER (Tanjong Priok, Feb. 3, 1939). Displacement: 1,600 tons. Dimensions: 216 (*w.l.*), 245 (*o.a.*) × 39¼ × 10 feet. Machinery: Diesel. B.H.P.: 1,250 = 12 kts.

Lighthouse Service—*continued.*



POLLUX. 1939, *courtesy F. W. Endert, Esq.*

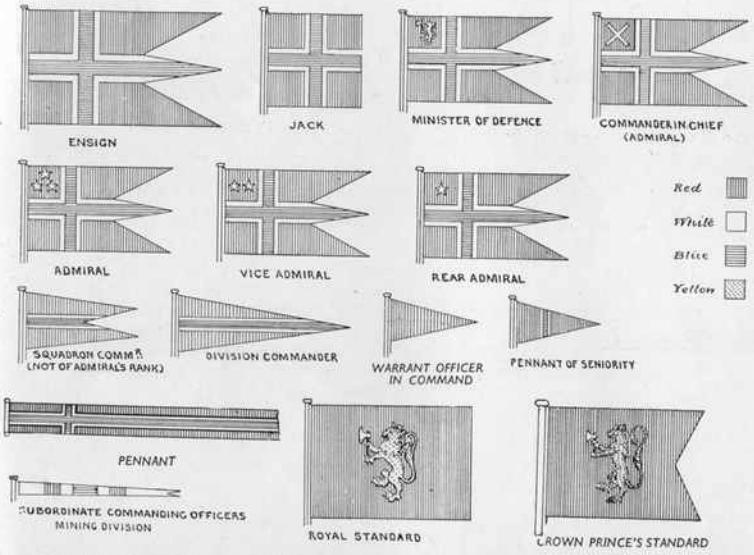
POLLUX (Amsterdam, 1922). Displacement: 946 tons. Complement: 48. Dimensions: 182½ × 31½ × 10½ feet. I.H.P.: 550 = 12 kts.



ZEEMAN *Official Photo, added* 1934.

HOOFDINSPECTEUR ZEEMAN (Amsterdam, 1909). Displacement: 780 tons. Dimensions: 164 (pp.) × 30½ × 10½ feet. I.H.P.: 860 = 11 kts. Complement: 43.

NORWAY.



British equivalents	Admiral.	Vice-Admiral.	Kontre-Admiral.	Kommandör.	Kommandör-Kaptein.	Kaptein.	Löjtnant.	Fenrik.
	Admiral.	*Vice-Ad.*	*Rear-Ad.*	*Commodore.*	*Captain.*	*Commander.*	*Lieut-Com. & Lieut.*	*Sub-Lieut.*

In relative rank Doctors have the same *without curl*, and a *red* passe poil above upper stripe.
" " Paymasters " " " " *blue* " " "
" " Warrant Officers " " " and with various branch marks above upper stripe.

Note.—Though stripes of certain ranks are same as in British Navy, peaks of caps are plain in all.

Modern Guns (Armstrong and Bofors). (Details officially revised 1930.)

Notation.	Designation		Length in calibres	Model. *	Weight of Gun.	Weight of A.P. shot.	Initial velocity	Max. penetration firing A.P. capped at K.C.		Danger Space against average warship, at			Nom. Rounds per minute.
								5000 yards.	3000 yards.	10,000 yards.	5000 yards.	3000 yards.	
MEDIUM.	c/m.	inches.			tons.	lbs.	ft. secs.	ins.	ins.	yds.	yds.	yds.	
	20·9	8·2	44	A	18½	309	2300	0½	9¼	100	405	594	4
	14·91	5·9	46	A	7	100	2625	3	4½	67	215	440	8
	12	4·7	44	B	2½	46	2625	...	...	...	...	...	10
	12	4·7	44	A	2¾	44	2570	...	...	...	...	...	10
LIGHT.	*10·16*	4	40	B	2	32	2515	...	...	...	...	...	20
	7·6	3	50	B	1	12	2820	...	...	...	...	...	...
	7·6	3	40	A	⅝	12	2210	...	...	...	...	...	...
	7·6	3†	28	B	⅝	12	1640	...	...	...	...	...	...
	7·6	3†	21	B	½	12	1500	...	...	...	...	...	...
	4	1·57	60	B	⅛	2	2790	..	..	..	..	..	..
	2	·8	70	O	1/17	·31	2725	..	..	..	..	..	..
	2	·8	60	O	1/17	·31	2460	..	..	..	..	..	..

* B = Bofors. A = Armstrong. O = Oerlikon. † Anti Aircraft. There is also a 3 pdr. AA. gun.

Minister of Defence.—Colonel Ljingberg. *Commander in Chief.*—Rear-Admiral H. E. Diesen.

Colour of Ships: Coast Defence Ships, Destroyers, Torpedo Boats, Gunboats, &c., all light grey.

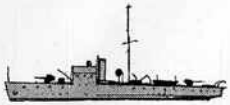
General Notes.—Personnel: About 850 permanent, 700 yearly conscripts, all seafaring men in reserve.

Mercantile Marine.—(From "Lloyd's Register," 1939). 1,990 Vessels of 4,834,902 gross Tonnage.

Navy Estimates.—1938-39, Kr. 16,101,276 + 19,699,900 Extraordinary expenditure. Total, Kr. 35,801,176.

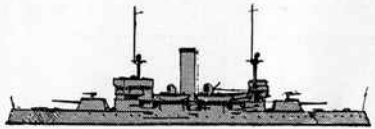
Special Note.

Only ships that are definitely known to have been destroyed have been deleted from the following pages.



GLOMMEN. LAUGEN.

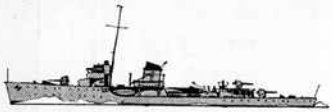
OLAV TRYGGVASON.



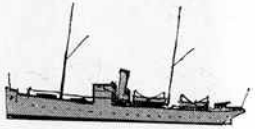
HARALD HAARFAGRE. TORDENSKJOLD.

FRIDTJOF NANSEN.

NORDKAPP.

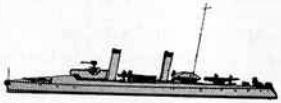


SLEIPNER *class*.



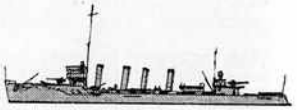
HEIMDAL.

SNÖGG.

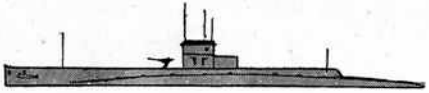


LAKS. SKREI.

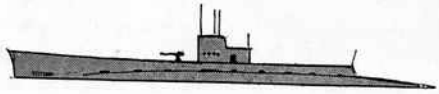
KJELL. SKARV. TEIST.



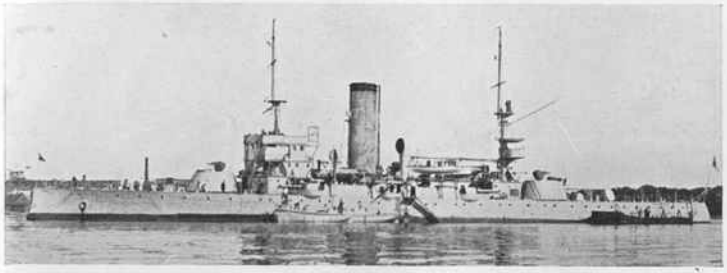
TROLL. DRAUG.



B 1—4



B 5—6



TORDENSKJOLD. 1933 *Photo, Official.*

HARALD HAARFAGRE (Jan., 1897), **TORDENSKJOLD** (March, 1897).

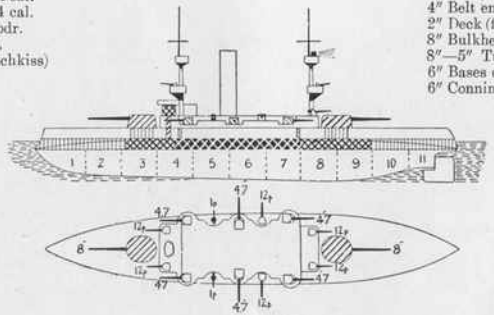
Displacement, 3858 tons. Complement, 249.

Length (p.p.), 279 feet. Length (*over all*), 304 feet. Beam, 48½ feet. *Maximum* draught, 17⅔ feet. *Mean* draught, 16½ feet.

Note to Plan.—Forebridge now built up as in photo.

Guns (Armstrong):
2—8·2 inch, 44 cal.
6—4·7 inch, 44 cal.
6—3 inch 12 pdr.
2—3 inch AA.
2—1 pdr. (Hotchkiss)

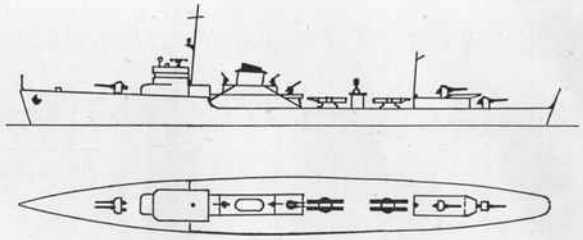
Armour (Harvey):
7″ Belt (amidships)
4″ Belt ends
2″ Deck (flat on belt)
8″ Bulkheads
8″—5″ Turrets
6″ Bases of turrets
6″ Conning tower



Machinery: Triple expansion. 2 shafts. Boilers: 3 cylindrical. Designed H.P.: 4,500 = 16·9 kts. (made 17·2 on *trial*, 1897–8). Coal: 550 tons.

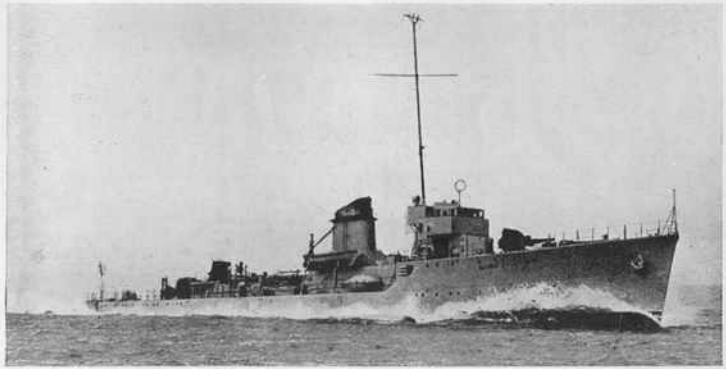
Notes.—Built by Armstrong, and completed 1897–8. Engined by Hawthorn, Leslie & Co. Belt is 174 feet long by 6½ feet deep. Excellent seaboats, good for 14 kts. still.

Destroyers (*Jagere*)



2 Destroyers were laid down at Horten, in April, 1939. Displacement: 1,220 tons *standard*. Complement: 130. Dimensions: 300 (*pp.*), 319 (*o.a.*) × 32¾ × 9 feet. Guns: 4—4·7 inch, 2—40 mm. AA., 2—12·7 mm. Tubes: 4—21 inch (paired). Machinery: De Laval geared turbines. S.H.P.: 30,000 = 34 kts. Oil fuel: 300 tons. To be completed in 1943.

Torpedo Boats (*Torpedobaater*)



SLEIPNER. 1937, *Official.*

Sleipner (May 7, 1936), ***Gyller*** (July 2, 1938), ***Odin*** (Jan. 17, 1939), ***Balder*** (Oct. 11, 1939). *Standard* displacement: 597 tons. Complement: 72. Dimensions: 236½ (*pp.*), 243¾ (*o.a.*) × 25½ × 7 feet (*mean*), 9 feet (*max.*). Guns: 3—4 inch, 1—40 mm. AA., 2 M.G., 4 D.C.T. Fitted for minelaying. Torpedo tubes: 2—21 inch, paired (except *Gyller*, 4). Machinery: 2 De Laval geared turbines. 2 shafts. Designed H.P.: 12,500 = 32 kts. 3 water-tube boilers, working pressure: 450 lbs. Oil fuel: 100 tons. All built at Horten.

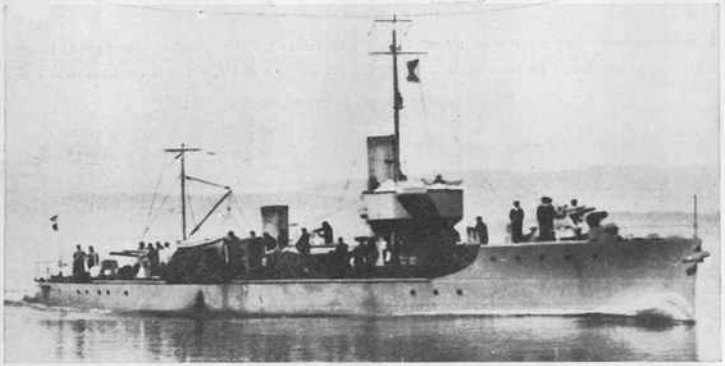
SLEIPNER *class* (GYLLER has 4 tubes.)

NORWAY—Torpedo Boats

(Appearance as *Garm*, in War Loss Section.)

Draug (1908) and ***Troll*** (1910). Both built at Horten. 540 tons. Dimensions: 227 × 23½ × 8¼ feet. Armament: 6—3 inch, 3—18 inch tubes. Machinery: Reciprocating. H.P.: 7,500 = 27 kts. Coal: 105 tons. Complement: 76.

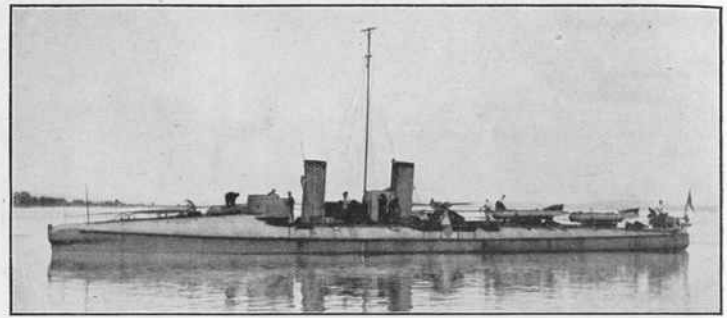
SNÖGG



Photo, by favour of "Flottes de Combat."

Snögg (Horten, 1916–17). 220 tons. Dimensions: 173·9 × 18 × 5·2 feet. Guns: 2—3 inch. Tubes: 4—18 inch. Fitted for minelaying. Designed H.P.: 3,500 = 25 kts. Fuel capacity: 30 tons oil. Complement: 33.

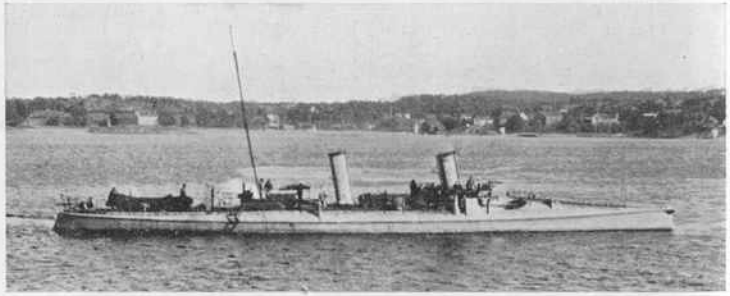
2 Motor Torpedo Boats (Vosper, Ltd., Portsmouth, 1939). Length, 60 feet. Machinery 2 Isotta-Fraschini petrol engines. H.P.: 2,200 = over 40 kts. Complement: 10.



SKARV.

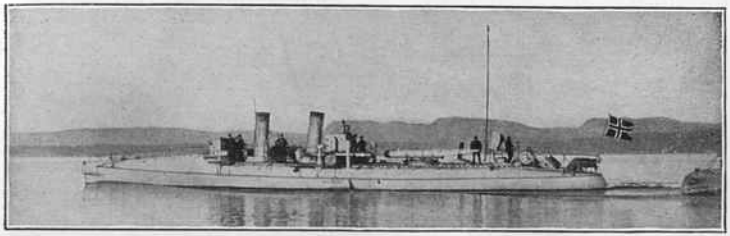
1925 *Photo, by favour of the Ministry of Defence.*

3 boats: ***Kjell*** (1912). 94 tons: ***Skarv, Teist*** (Karl Johans Verksted, Horten, 1907–08). 92 tons. *Skarv, Teist*, 2—3 pdr. guns. *Kjell* 1—3 inch. In all three boats, 3—18 inch tubes, one bow and two deck aft. Speed of all three boats, 25 kts. H.P. 1,700. Coal: 16 tons. Complement, 21.



1934 *Photo, Official.*

2 boats: ***Laks, Skrei*** (1900). Displacement: 90 tons. Armament: 2—1 pdr. guns and 2—18 inch tubes on deck Complement: 19. Built by Karl Johans Verksted, Horten. H.P.: 1,000 = 21 kts. Coal: 17 tons.



1918 *Photo, Wilse, Oslo.*

2 boats: ***Lom*** (1906), ***Örn*** (1904). Displacement: 70 tons. Complement: 16. Guns: **2**—1 pdr. Tubes: **2**—18 inch (1 bow, 1 deck). Built in Norway.

1918 *Photo, Wilse, Oslo.*

2 boats: ***Hauk, Falk*** (1903), 63 tons; **2**—1 pdr. and 1 bow torpedo tube. 20 kts. Complement, 14. Built in Norway. Fitted as minesweepers.

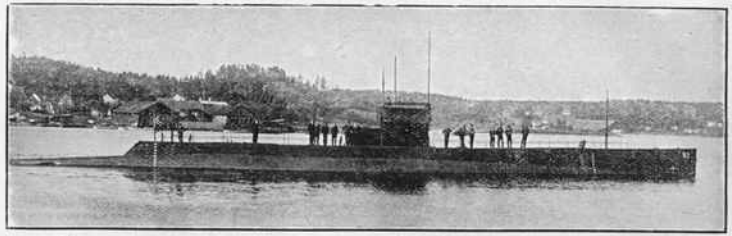
HVAS. 1934 *Photo, Official.*

2 boats: ***Hvas, Kjæk*** (1900), 64 tons; Guns: 2—1 pdr. 1 bow tube, 19 kts. Complement, 14. Fitted as minesweepers.

5 boats: ***Kvik, Djerv, Dristig*** (1897–98), 67 tons. ***Blink, Lyn*** (1896), 45 tons. All three boats 19 kts. speed. *Djerv* and *Dristig* fitted for minesweeping. Guns: **2**—1 pdr. Complement: 14 for all. Built in Norway.

Submarines (*Undervandsbaater*).

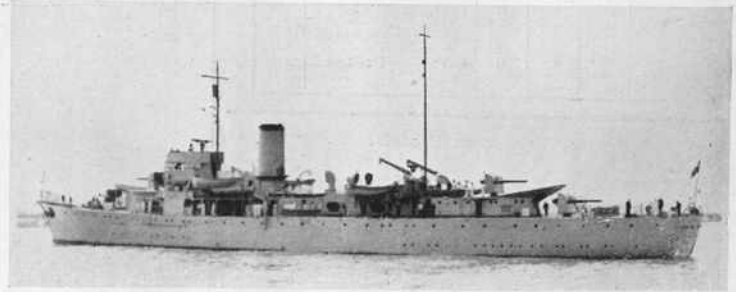
Note.—2 new submarines were to have been built at Horten, but had not been begun in April, 1940.



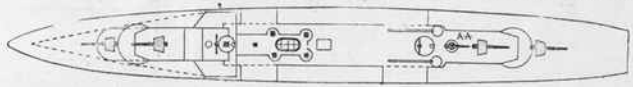
B 2. 1925 *Photo, by favour of the Ministry of Defence.*

6 *Electric Boat Co.* design: ***B 1*** (1923), ***B 2*** (Oct. 1, 1924), ***B 3*** (1926), ***B 4*** (May 1, 1927), ***B 5*** (June 17, 1929), ***B 6*** (August, 1929), (all built at Horten). 420 tons *on surface*, 545 tons *submerged*. H.P.: 900 = 14¼ kts. *on surface*, 700 = 11 kts. *when submerged*. Dimensions: 167½ × 17½ × 11½ feet. Sulzer type Diesel engines, built at Horten. Electric motors built in Norway. Armament: 1—3 inch, 4—18 inch torpedo tubes (2 bow, 2 stern). Complement: 23. Laid down 1915. *B 1* completed 1923, and reported to have been very successful, maintaining a speed of 14·5 kts. on trial. *B 2* completed in 1924, *B 3* in 1926, *B 4* in 1927. *B 5*, *B 6* both laid down in Dec., 1925, and completed in 1929 and 1930 respectively.

Minelayers.



1937, *Capitaine M. Adam.*



OLAV TRYGGVASON (Horten, 1933). Displacement: 1,596 tons (*full load*, 1,924 tons). Complement, 128. Dimensions: 304 (*p.p.*) 319 (*o.a.*) × 37½ × 12 feet (*mean*), 18⅝ feet (*max.* draught). Guns: **4**—4·7 inch, **1**—3 inch AA., **2**—3 pdr., 2 M.G. Stowage for 280 mines, which can be laid from ports under counter. Machinery: 2 De Laval geared turbines, with 2 sets Sulzer Diesels and electric drive for cruising purposes. 2 shafts. S.H.P. 6,000 = 20 kts. (made on 6 hours' trial). 3 water-tube boilers. Fuel: 200 tons including Diesel oil. Radius of action, 3,000 miles at 14 knots.

Note.—Employed as cadets' training ship; can accommodate 65 cadets in addition to complement shown above. Germans are said to have renamed this ship *Albatros*.

Minelayers—*continued.*

GLOMMEN. 1921 *Photo, by courtesy of the Ministry of Defence.*

GLOMMEN (1917). **LAUGEN** (1917). Both Akers Yard, Oslo. 335 tons. Complement: 39. Dimensions: 137·8 × 27·9 × 6·2 feet. Guns: 2—3 inch. Designed H.P.: 170 = 9·5 kts. Coal: 21 tons. Each carries about 50 mines.

Name.	*Date.*	*Tons.*	*Crew.*	*Guns.*	*Speed kts.*
Gor ...	1885	276	44	1—4·7 in., 1—12, +2—1 pdr.	10·5
Vidar ...	1881	254	41	1—4·7 in. 1—3, +2—1 pdr.	9·5
Brage ...	1876				8·5
Nor ...	1878	254	38		8·5
Vale ...	1878	233	41	1—4·7 in. 3—1 pdr.	8
Uller ...	1874				

Fishery Protection Vessels.

1931 *Photo, Comm. Steen Steensen.*

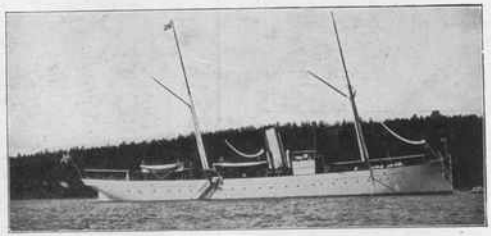
FRIDTJOF NANSEN (Horten, 1931). Displacement: 1,300 tons (full load, 1,700 tons). Complement, 70. Dimensions: 239·3 × 34·7 × 16·7 feet. Guns: 2—4 inch, 2—3 pdr. I.H.P. 2,000 = 15 kts. Coal: 150 tons + 95 tons oil.

(Wrecked in 1933, but salved in following year and refitted in 1936).

Fishery Protection Vessels—*continued.*

NORDKAPP 1937 *Official.*

NORDKAPP (Aug. 18, 1937). (Horten). *Standard* displacement: 243 tons (275 tons *full load*). Complement: 22. Dimensions: 130½ × 21½ × 7½ feet. Guns: 1—47 mm. 2 Sulzer Diesels, with electric drive. 1 shaft. H.P.: 830 = 13·75 kts. Fuel: 30 tons.



Photo, Wilse, Oslo.

HEIMDAL (1892). 640 tons. Complement, 62. Length, 181 feet. Draught, 13 feet. Guns: 4—3 inch. H.P. 625 = 12 kts. Coal: 92 tons.

Minesweeper.

Photo wanted.

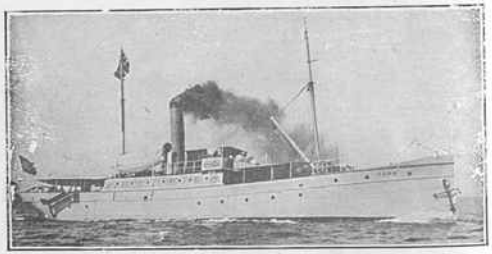
OTRA (Aug. 5, 1939). Built by Nylands Verksted, Oslo. Displacement: 320 tons. Dimensions: 167 × 23 × 6 feet. Guns: 1—40 mm. AA., 2—12·7 mm. Machinery: 2 sets triple expansion. I.H.P.: 900 = 13·5 kts. 1 watertube boiler. Complement: 23.

Submarine Depot Vessel.

1934 *Photo, Official.*

SARPEN (1860). (Rebuilt, 1918). 187 tons. Guns: 2—9 pdr., 1—1 pdr. Speed: 9 kts.

Transport (*Transportskib.*)



1918 *Photo, Wilse, Oslo.*

FARM (1900). 300 tons. Complement, 32. Guns: 2—9 pdr., 2—1 pdr. Speed: 9 kts.

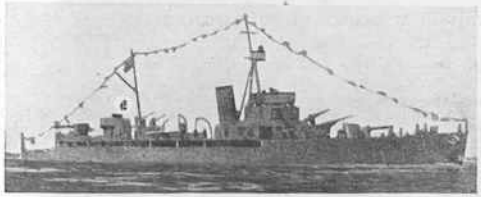
PARAGUAY.

Ensign & Mercantile

Capitán de Navio. Capitán de Fragata. Capitán de Corbeta. Teniente 1°. Teniente 2°. Guardia Marina.

Minister of War: General Nicolás Delgado.
Director of Naval Department: Commander D. M. Aponte.

River Gunboats



HUMAITA. 1932 *Photo, Official.*

HUMAITA, PARAGUAY (both 1930). Built by Odero, Genoa. Displacement: 745 tons (865 tons full load). Dimensions: 230 × 35 × 5½ feet *draught*. Guns: 4—4·7 inch, 3—3 inch AA., 2—40 mm. AA. H.T. Armour: ½″ side amidships, ½″ deck, ¾″ C.T. Parsons turbines and oil-fired boilers. H.P.: 3,800 = 18·5 kts. Oil: 240 tons. Radius: 1,700 miles at 16 kts. Complement: 86. Completed 1930.

Note—Mines are included in the equipment of these vessels.

TACUARI. 1932 *Photo, Official.*

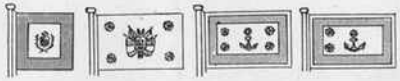
TACUARI (T. & J. Hosking, 1910). 150 tons. Complement: 54. Dimensions: 129·2 (*p.p.*) × 24·8 × 6 feet. Guns: 2—3 inch Vickers, 2—3 inch Armstrong, 2—37 mm. Vickers. H.P. 300 = 10 kts. Wood.

1932 *Photo, Official.*

CAPITAN CABRAL (Werf-Conrad, Haarlem, 1907). 180 tons. Complement, 47. Dimensions: 98·4 (*p.p.*) × 23·5 × 6 feet. Guns: 1—3 inch Vickers, 2—37 mm. Vickers. H.P. 300 = 12·5 kts. Wood.

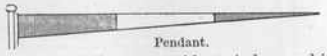
PERU.

National Flag.
Mercantile flag the same but without centre device.



Jack. President. Minister of Marine. Chief of Staff.

Vice-Admiral. Rear-Admiral. Captain. S.N.O. S.O. Destroyer Flotilla. S.O. Submarine Flotilla.



Pendant.

Uniforms. (Device is a radiant sun, *without* circle round it as shown below.)

As Contra-Almirante but with 2 thin stripes

Vice-Almirante. *Vice-Admiral.*	Contra-Almirante. *Rear-Admiral.*	Capitán de Navio. *Captain.*	Capitán de Fragata. *Commander. Senior.*	Capitán de Corbeta. *Commander. Junior.*	Teniente 1°. *Lieut. Comm'r.*	Teniente 2°. *Lieut.*	Alferez de Fragata. *Sub. Lieutenant*

All branches have the same insignia: Engineers and Surgeons wear respectively, instead of the Rising Sun, a propeller and a caduceus.

Mercantile Marine, 1939: 32 vessels of 39,894 tons *gross*.

Colour of Ships: Grey.

Form of Address: Capitan de Navio don—— B.A.P.——.

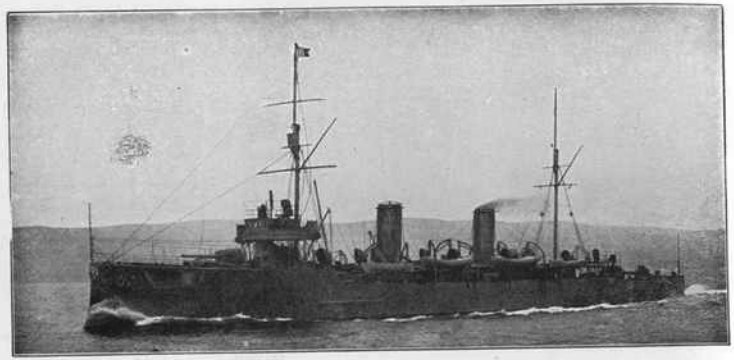
Alm. Grau (Cor. Bolognesi similar, but no poop).

Almirante Guise.

R. 1—4.

Almirante Villar.

Cruisers.



Coronel Bolognesi. The *A. Grau* is identical *except* that she has a poop.

ALMIRANTE GRAU (March 27, 1906) & **CORONEL BOLOGNESI** (Sept. 24, 1906).

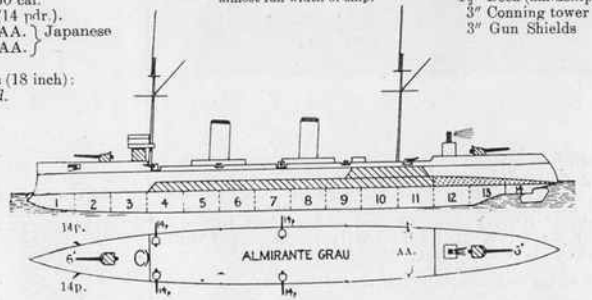
Displacement: 3,200 tons. Complement, 315.

Length (*p.p.*), 370 feet. Beam, 40¼ feet. *Maximum* draught, 14¼ feet.

Guns (Vickers):
2—6 inch, 50 cal.
6—3 inch (14 pdr.).
2—3 inch AA. } Japanese
4—20 mm. AA. }
5—M.G.
Torpedo tubes (18 inch):
2 *submerged*.

Note to Plan.—After bridge (with S.L.) extends almost full width of ship.

Armour:
1½″ Deck (amidships) =
3″ Conning tower ..
3″ Gun Shields ...



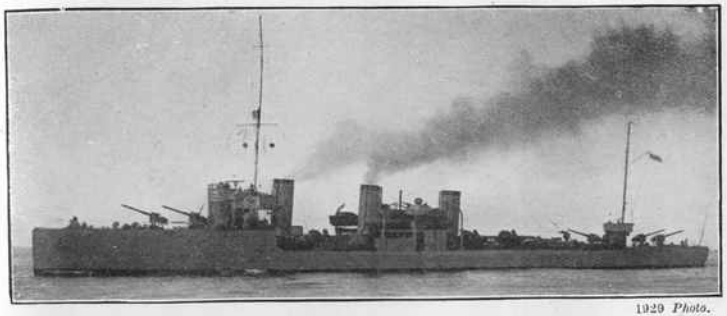
Machinery: 4 cylinder vertical triple expansion. 2 screws. Boilers: 8 Yarrow (new in 1934). Designed H.P. 14,000 = 24 kts. Oil: *normal*, 500 tons; Endurance: 3,700 miles at 10 kts.

General Notes.—Built and engined by Messrs. Vickers, Ltd., about 1905–07. Refitted at Balboa, boilers being re-tubed and modified for oil burning, 1923–25. Both reboilered by Yarrow, 1934-35. Both ships are now good for 23·5 kts. at sea. *Grau* is employed as fleet flagship.

Gunnery Notes.—Italian Giradelli type training indicators are believed to have been added to gunnery equipment. 2 after 3 inch (14 pdr.) guns replaced by new ones of Japanese manufacture, 1936.

2 Destroyers.

(Both captured from Soviet Navy by British Cruisers and Destroyers in the Baltic, in December, 1918, and transferred to Estonia, from whom they were purchased in 1933.)

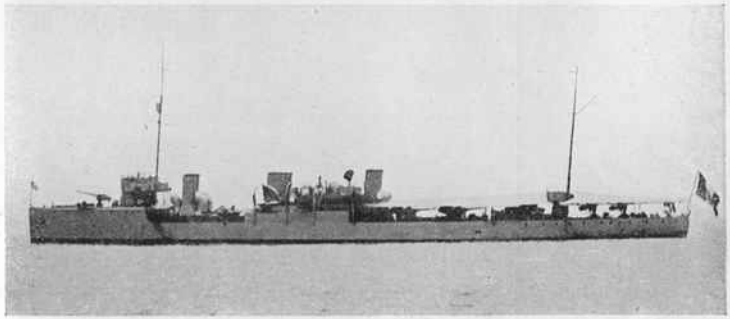


1929 *Photo.*

Almirante Guise (ex *Lennuk*, ex-Russian *Artroil*). Launched at Tallinn by Reval Shipbuilding Co., 1915, completed 1917. Displacement: 1,350 tons. Dimensions: 344½ × 31½ × 11·8 feet. Guns: 5—4 inch, 60 cal., 2—20 mm. AA., 3 M.G. Torpedo tubes: 9—18 inch, in 3 triple deck mountings. Designed to carry and lay 80 mines. Designed S.H.P. 32,000 = 30 kts. A.E.G. Curtis turbines. Oil fuel: 450 tons = 2,400 miles at 15 kts. Complement, 142.

Note.—This vessel was built to the design of Chantiers et Ateliers Augustin Normand, Le Havre

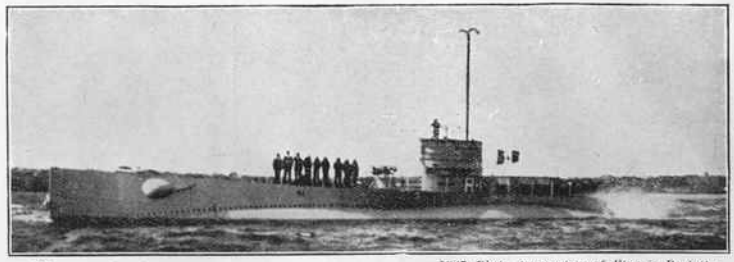
(Plans of these 2 ships as those of Russian *Karl Marx* and *Uritski* types, respectively.)



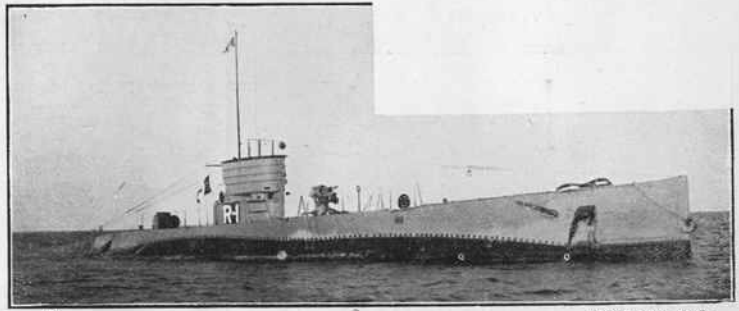
1935.

Almirante Villar (ex-*Vambola*, ex-Russian *Spartak*, ex-*Mikula Maklei*). Launched by Putilov Works, Petrograd, 1915, and completed 1918. Displacement: 1,150 tons. Dimensions: 315·7 × 30½ × 12·15 feet. Guns: 4—4 inch, 60 cal., 2—20 mm. AA., 3 M.G. Torpedo tubes: 9—18 inch, in 3 triple deck mountings. Designed to carry and lay 80 mines. Designed S.H.P. 32,000 = 30 kts. A.E.G. Curtis turbines. Oil fuel: 420 tons = 2,500 miles at 15 kts. Complement, 142.

Submarines.



R1. 1927 *Photo by courtesy of Electric Boat Co.*



R1. *Official Photo*, 1927.

4 *Electric Boat Co.* design: ***R 1*** (April, 1926), ***R 2*** (May, 1926), ***R 3*** (April 21, 1928), ***R 4*** (May 10, 1928). Built by Electric Boat Co., Groton, Conn. *Surface* displacement: 576 tons. *Submerged* displacement: 682 tons (exclusive of non-watertight parts), 755 tons (inclusive of such parts). Dimensions: 186½ (*o.a.*), 178½ (*pp.*) × 17½ × 15 feet. 2 Nelseco Diesel engines, together H.P.: 880 = 14·5 kts. Electric motors of 1,000 B.H.P. = 9·5 kts Radius of action: 8,000 miles. Guns: 1—3 inch. Tubes: 4—21 inch (bow). Complement: 30.

Note.—*R* 1, *R* 2, on delivery, completed an unescorted trip from Connecticut to Callao, without mishap, arriving in good order. *R* 3, *R* 4 delivered in summer of 1928. *R* 1 *R* 2 were refitted at builders' yard in 1935, *R* 3 and *R* 4 in 1936.

Motor Launches.

Built in U.S.A. Length 90 feet. Further particulars wanted

Oiler.

PARIÑAS (ex-*Sjömand*). (Thornycroft, 1921). 2,820 tons *gross*. Dimensions: 300 × 44 × 21½ feet. Machinery: Turbines. I.H.P.: 1,600 = 10 kts. Oil: 560 tons. Tanks: 4,300 tons.

Transport.

Photo wanted.

RIMAC (ex-*Eten*, ex-*Rhakotis*). (Blohm & Voss, Hamburg, 1907). 6,848 tons *gross*. Dimensions: 485½ × 53 × 26 feet. I.H.P.: 3,200 = 12 kts. Coal: 1,600 tons.

River Gunboats (Upper Amazon Flotilla).

1935, *Official*.

AMAZONAS, LORETO (1934). Designed and built by Electric Boat Co., Groton, Conn. Displacement: 250 tons (*standard*). Length: 153¼ feet. Guns: 4—3 inch AA., 2—20 mm. AA., 2 M.G. Machinery: Diesel. H.P.: 750 = 15 kts. Complement: 35.

NAPO (Yarrow, 1920). Steel. 98 tons. Dimensions: 100 (*p.p.*) 101½ (*o.a.*) × 18 × 3 feet. Guns: 4—47 mm. (3 pdr.), 2—37 mm., 2—20 mm. AA., 4 M.G. Machinery: Triple expansion. H.P.: 250 = 12 kts. Yarrow boilers. Fuel: 380 cubic feet wood. Complement: 22.

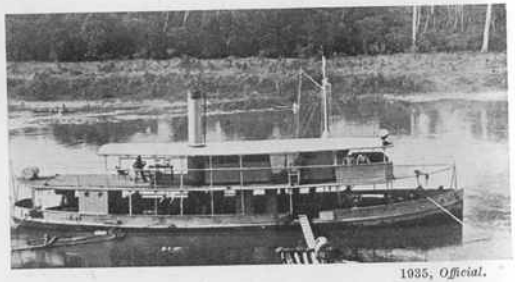
America.

1935, *by courtesy of Ministry of Marine*.

AMERICA (1904). Steel. 240 tons. Dimensions: 133 × 19½ × 4½ feet. Guns: 2—65 mm., 3—47 mm. (3 pdr.), 2—20 mm. AA. I.H.P.: 350 = 14 kts. Coal: 42 tons. Complement:

River Gunboats—*continued*.

CORONEL PORTILLO (ex-*San Pablo*). 49 tons net. Dimensions: 80½ × 16½ × 4 feet. Guns: 2. Compound engines. Speed: under 7 kts.



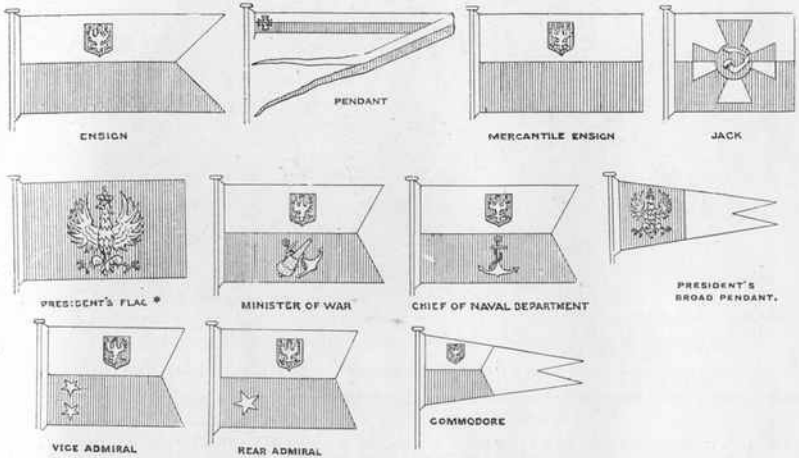
1935, *Official*.

IQUITOS (1875). Rebuilt 1896. 50 tons. Dimensions: 77 × 12 × 7½ feet. Guns: 4—37 mm., 2—20 mm., 2 M.G. Speed: 7·5 kts.

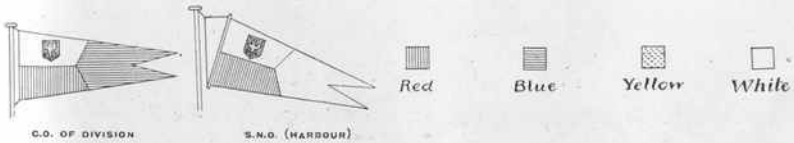
Note.—Iquitos and *Cor. Portillo* are converted merchant vessels.

POLAND.

Flags.



DIVISIONAL COMMANDERS



Note.—The Emblem in the centre of the Jack is a flesh-coloured arm holding a steel-blue scimitar with gold hilt. The covering over shoulder of the arm is pale blue and has a gold-tasselled fringe.

* President's flag now has a crenated border.

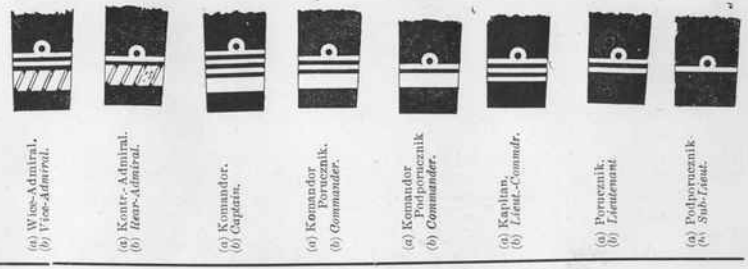
Mercantile Marine.

Official figures (1940):
35 ships of 90,000 tons *gross*.

Minister of War.—Lieut.-General W. Sikorski.
Chief of the Navy.—Rear-Admiral J. Swirski.
Naval Attaché, London.—Commander T. Stoklasa.
Personnel.—160 officers, 1,350 men: total, 1,510.
Colour of Warships.—Grey-green.

Uniforms.

(a) = Polish Rank. (b) = Equivalent British Rank


(a) Wice-Admirał. (b) Vice-Admiral.
(a) Kontr.-Admirał. (b) Rear-Admiral.
(a) Komandor. (b) Captain.
(a) Komandor Porucznik. (b) Commander.
(a) Komandor Podporucznik (b) Commander.
(a) Kapitan. (b) Lieut.-Commdr.
(a) Porucznik. (b) Lieutenant
(a) Podporucznik. (b) Sub-Lieut.

WILK *class*.

SEP

BURZA

BLYSKAWICA.

2 Destroyers (*Kontrtorpedowce*).

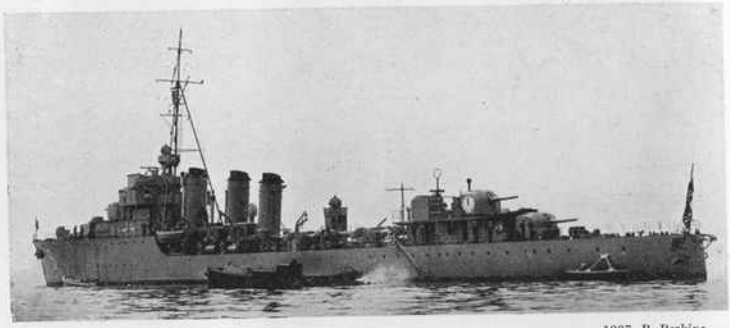
BLYSKAWICA. 1937, *R. Perkins.*

BLYSKAWICA. 1937, *R. Perkins.*

Blyskawica (Oct. 1, 1936). Built by J. Samuel White & Co., Ltd., Cowes. *Standard* displacement: 2,144 tons. Complement: 180. Dimensions: 357 (*pp.*), 374 (*o.a.*) × 37 × 10¼ feet. Guns: **7**—4·7 inch, **4**—47 mm. AA., **4** M.G. Tubes: **6**—21 inch (tripled), **2** D.C.T. Fitted for minelaying. Machinery: Parsons geared turbines. 2 shafts. H.P.: 54,000 = 39 kts. Boilers: 4 of 3-drum type, 385 lbs. pressure with 200° of superheat. Bows strengthened for ice navigation.

Note.—Name of this ship means Lightning. She and her sister ship *Grom* (Thunderbolt), lost in May, 1940, were completed 1937. Trials exceeded designed speed.

Destroyers—*continued.*



BURZA. 1937, *R. Perkins.*

Burza (April 16, 1929). Laid down by Chantiers Navals Français, Blainville, Nov. 1, 1926. Displacement: 1,540 tons. Dimensions: 344 (*e.l.*), 351 (*o.a.*) × 29 × 9¾ feet draught. Guns: **4**—5·1 inch, **2**—47 mm. AA., **4** M.G. Torpedo tubes: **6**—21 inch, in triple deck mountings. Machinery: Geared turbines (supplied by At. & Ch. de la Loire). H.P.: 35,000 = 33 kts.

Notes.—Design of this vessel follows closely that of French *Simoun* class. Meaning of name is: Squall. Completed 1930. Sister ship *Wicher* (Hurricane) sunk at Gdynia, Sept., 1939.

Submarines (*Okrety Podwodne*).

Sep (Oct. 17, 1938). Laid down, 1936, by Rotterdam Dry Dock Co. Displacement: 1,110/1,473 tons. Complement: 56. Dimensions: 273½ (*pp.*), 275½ (*o.a.*) × 22 × 13 feet. Guns: **1**—3·5 inch, **2**—40 mm. AA. Torpedo tubes: **8**—21 inch. Fitted for minelaying. Machinery: 2 Sulzer Diesels. B.H.P.: 4,740/1,000 = 19/9 kts.

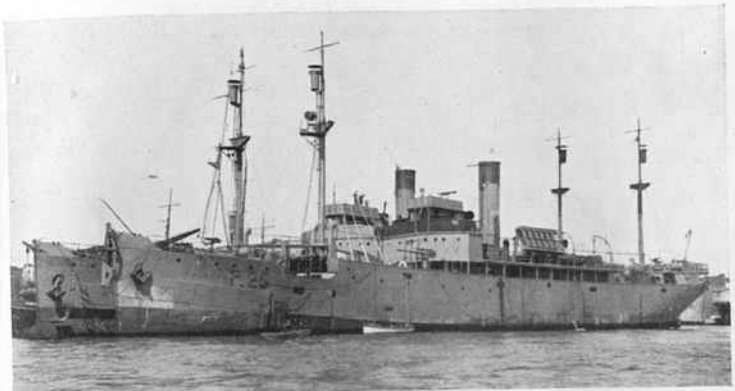
Note.—This name means Vulture. A sister ship, the *Orzel* (Eagle), paid for by funds subscribed by the Polish Navy League, was lost in June, 1940. *Sep* interned at Stockholm, Sept., 1939.

WILK. 1930 *Photo, by courtesy of Messrs. Augustin Normand.*

3 *Normand-Fenaux* type: ***Rys*** (At. & Ch. de la Loire, Nantes), April 22, 1929, ***Zbik*** (Ch. Navals Français, Blainville, June 14, 1930), ***Wilk*** (Ch. & At. Augustin Normand, Le Havre, April 12, 1929). Displacement: $\frac{960}{1225}$ tons. Dimensions: 246 × 18 × 13 feet. Guns: **1**—3·9 inch, **1**—1·5 inch AA. Torpedo tubes: **6**—21·7 inch. Mines carried: **38**. 2 sets Vickers-Normand Diesels, H.P. 1800 = 14 kts. on *surface*. Electric motors, B.H.P. 1200 = 9 kts. *submerged*. Radius of action: 3500 miles on *surface* at 10 kts., 100 miles *submerged*. Diving limit: 44 fathoms. Carry **10** torpedoes and **38** mines.

Notes.—Meanings of names are as follows: *Rys*, Lynx; *Wilk*, Wolf; *Zbik*, Wild Cat. *Wilk* is prototype of the class, and all were built to Normand plans. Are distinguished by initials of names, painted on C.T. *Rys* and *Zbik* were both interned in Sweden, September, 1939.

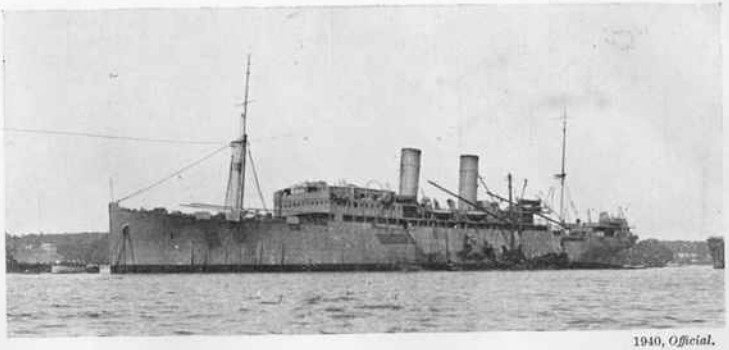
Sloops.



POMEROL (MÉDOC behind her) 1940, *Official.*

MÉDOC, POMEROL (both 1930). Displacement: 1,160 tons. Dimensions: 239½ × 42¾ × — feet. Guns: 4—3·9 inch, 2—37 mm., 4 M.G. Machinery: H.P.: 900 = 10·5 kts. Coal: 212 tons.

Depot Ship.



1940, *Official.*

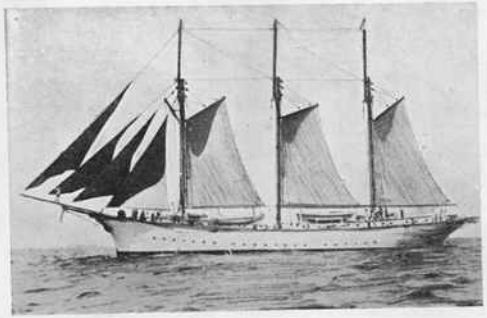
GDYNIA (ex-*Kosciuszko*, ex-*Lituania*, ex-*Czaritza*), (Barclay, Curle & Co., Whiteinch, 1915). Displacement: 12,000 tons. Dimensions: 440 (*pp.*), 444 (*o.a.*) × 53½ × 24½ feet. Machinery: Quadruple expansion. 2 shafts. I.H.P.: 5,600 = 14 kts. 6 boilers. Coal: 1,358 tons.

Transport (*Transportowiec*).

WILJA. 1932 *Photo, Official.*

WILJA (ex-*Laurent Schiaffino*, ex-*Le Bourget*, ex-*Tinos*, ex-*Hilda Horn*, ex-*Ganelon*). (Flensburg, 1906). Displacement: 8,400 tons (3,570 tons *gross*). Dimensions: 341 × 48¾ × 19½ feet. I.H.P.: 1,350 = 10 kts. Complement: 53. Coal: 600 tons.

Training Ship (*Okret Szkolny*).



ISKRA. 1932 *Photo, Official.*

ISKRA (1917). Auxiliary 3-masted Schooner, purchased in Netherlands, 1927. Displacement: 560 tons. Dimensions: 127¾ × 25 × 9¾ feet. H.P. 130 = 7·5 kts. Sea-going Tender to Naval College. Complement (including cadets), 58.

Patrol Boats.

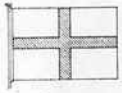
2 Motor Patrol Boats were ordered from Messrs. J. Samuel White & Co., Ltd., Cowes, in 1939. Displacement: 34 tons. Dimensions: 72 × 16¾ × 5½ feet. Armament: 2 Lewis guns, 10 D.C. Machinery: Isotta-Fraschini petrol motors. B.H.P.: 3,450 = 42 kts. Complement: 9.

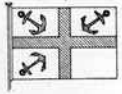
Drifters.

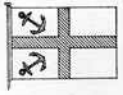
P 1—12. Displacement: 23 to 101 tons. All Diesel or semi-Diesel propulsion. Speeds: 5 to 12 kts.

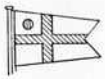
Note.—Former respective names of these vessels, all of which were originally Belgian, are: *Renaissance, Oscar August, Elisabeth Gilberte, Pierre, Hendrik Conscience, Sirius, Zee Mer, Dedrie Gezusters, Blanche Marguerite, Charles Jeannine, Lucienne Christine,* and *Femina.*

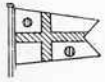
PORTUGAL.











Naval Uniforms:

British rank.	Almirante.* *Admiral.*	Vice-almirante.† *Vice-Admiral.*	Contra-almirante.‡ *Rear-Admiral.*	Capitão de mar e guerra. *Captain.*	Capitão de fragata. *Commander. (Senior.)*	Capitão-tenente. *Commander. (Junior.)*	Primeiro tenente. *Lieut.-Commander.*	Segundo Tenente. *Lieut.*	Guarda marinha. *Midshipman*

* Admiral has four *gold* stars. † Vice-Admiral has three *gold* stars. ‡ Rear-Admiral has three *silver* stars.
Staff officers same but *without* executive curl. Colour between stripes—*Surgeons:* red; *Engineers:* violet; *Paymasters:* blue; *Constructors:* black. On visor of cap, *Admirals:* 2 oak leaves; *Captains:* 1 oak leaf; *Commanders:* 1 narrow stripe. Uniforms like British Navy. Chin strap of gold cord, but officers of lieutenant's rank and below have black chin straps.

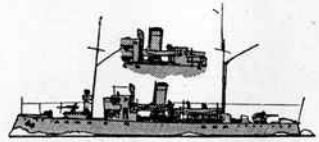
Minister of Marine: Commander Manoel Ortins de Bettencourt.

Chief of the Naval Staff: Vice-Admiral Botelho de Sousa.
Personnel: 719 officers and 5,550 men. *Colour of ships:* Light grey.
Mercantile Marine: (From "Lloyd's Register," 1939 figures) 266 vessels, *gross* tonnage, 269,118.
Navy Estimates, 1939: Escudos 228,810,164.

Mode of address: N.R.P. "———". (Navio da Republica Portuguesa). *Displacements:* Standard.

FARO. LAGOS.

GONÇALVES ZARCO. GONÇALO VELHO.

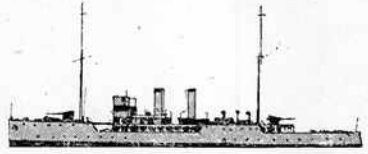


DIU *class.*
(*Inset:* BEIRA. IBO).

PEDRO NUNES.
JOÃO DE LISBOA.

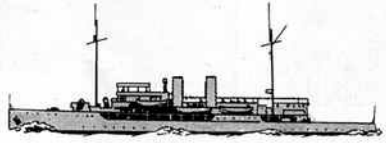
VOUGA *class.*

AFONSO DE ALBUQUERQUE.
BARTOLOMEU DIAS.



REPUBLICA.

TAMEGA.

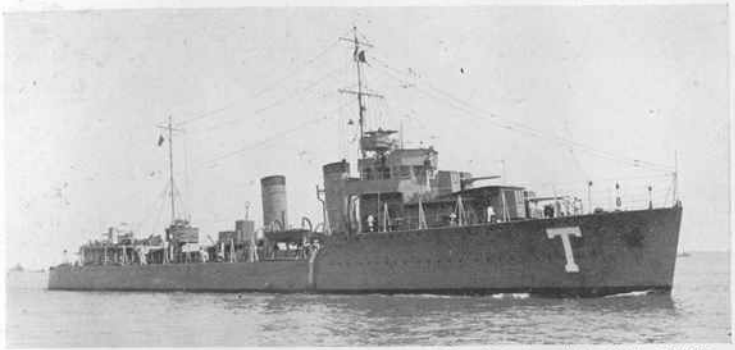


C. ARAUJO.

DELFIM. ESPADARTE. GOLFINHO.

6 Destroyers (*Contra-Torpedeiros*).

3 authorised for construction, but none yet begun. Displacement: 1,400 tons.



TEJO. 1936, *Courtesy Eng. Lieut.-Com. Aluino Martins da Silva.*

5 *Yarrow* type: ***Dão*** (July 27, 1934), ***Vouga*** (Jan. 25, 1933), ***Lima*** (May 29, 1933), ***Tejo*** (May 4, 1935), ***Douro*** (Aug. 16, 1935). Displacement: 1,239 tons *standard*, 1,588 tons *full load*. Complement: 163 *normal*, 184 *full*. Dimensions: 319 (*pp.*), 322 (*o.a.*) × 31 × 11 feet (*mean draught*). Guns: 4—4·7 inch, 50 cal., 3—40 mm. AA., 2 D.C.T. Torpedo tubes: 8—21 inch, quadrupled. Mine rails fitted and 20 mines carried.

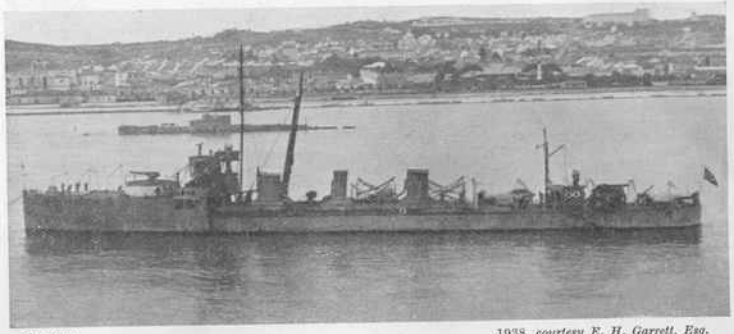
Machinery: Parsons geared turbines. S.H.P. 33,000 = 36 kts. 3 Yarrow boilers (400 lbs. pressure). Oil: 296 tons *normal*, 345 tons *maximum*. Radius: 5,400 miles at 15 kts. Trials gave speeds of from 36·65 to 37 kts. with ample margin of power and boiler capacity.

Note.—Two earlier ships of this class, originally named *Douro* and *Tejo*, were sold to Colombia, fresh ships with these names being built to replace them. All built at Lisbon except *Vouga* and *Lima*, constructed on the Clyde by Messrs. Yarrow, as were machinery and boilers of all five.

Distinguishing letters on bows: D—*Dão* D R—*Douro* L—*Lima* T—*Tejo* V—*Vouga*

VOUGA 1933, *courtesy Messrs. Yarrow.*

Destroyers (*continued*).

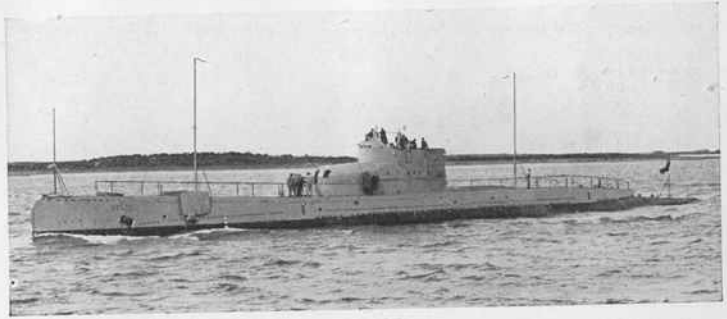


TAMEGA. 1938, *courtesy E. H. Garrett, Esq.*

1 *Yarrow* type: ***Tamega*** (Jan. 1922) by Lisbon D.Y. 524 tons (670 tons *full load*). Dimensions: 240 × 23¾ × 7¾ feet, *max.* draught. Armament: 1—4 inch, 2—3 inch. 4—18 inch Torpedo tubes (paired). Parsons turbines: 11,000 = 27 kts. 3 Yarrow boilers. Coal: 146 tons = 800 miles at 15 kts. Complement, 80.

3 Submarines (*Submersiveis*).

3 authorised for construction, but not yet laid down. Displacement: 900 tons.



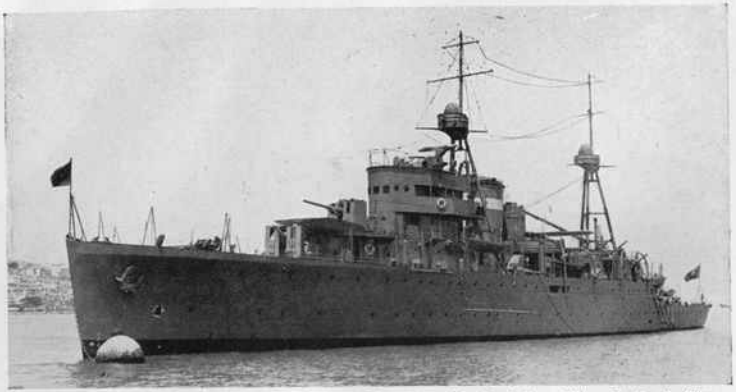
DELFIM. 1934 *Photo Messrs. Vickers Armstrongs.*

3 *Vickers-Armstrongs* type: ***Delfim*** (May 1, 1934), ***Espadarte, Golfinho*** (both May 30, 1934).

Displacement: 813/1,125 tons. Dimensions: 227·2 × 21·3 × 12·7 feet. Complement, 36.
Armament: 1—4 inch, 2 M.G. Tubes: 6—21 inch (4 bow, 2 stern). 12 torpedoes carried.
Machinery: Vickers Diesels, B.H.P. 2,300 = 16·5 kts. Motors H.P. 1,000 = 9·25 kts. Radius: 2,080 miles full speed, 5,000 miles at 10 kts.; *submerged* = 8 miles at full speed and 110 miles at 4 kts.

Notes.—All three laid down at Barrow, 9th March, 1933, and completed 1935. Distinguished by initial letters of names painted on C.T.

1st class. (*Avisos de 1a Classe.*)



B. DIAS. 1936, *courtesy Eng. Lieut.-Com. Aluino Martins da Silva.*

AFONSO DE ALBUQUERQUE (May 28, 1934). **BARTOLOMEU DIAS** (Oct. 10, 1934). Built by R. & W. Hawthorn, Leslie & Co.

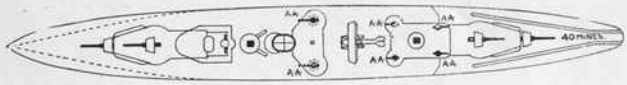
Displacement: (*standard*), 1,811 and 1,816 tons, respectively; (*full load*), 2,473 and 2,478 tons, respectively.

Complement: 189 (peace), 229 (war). Dimensions: 326¾ × 44½ × 12½ feet (*mean*).

Guns:
4—4·7 inch, 50 cal.
2—3 inch AA.
4—40 mm. AA.
2 D.C.T.

Aircraft: 1.

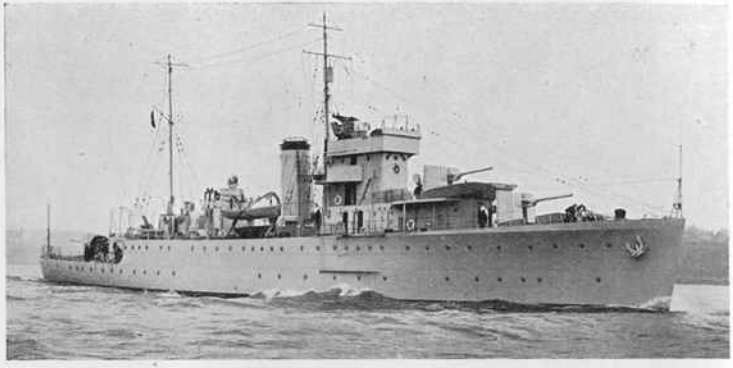
Fitted to carry 40 mines.



Machinery: Parsons geared turbines. S.H.P.: 8,000 = 21 kts. Oil fuel: 660 tons. Radius: 8,000 miles at 10 kts. 2 Yarrow boilers.

Notes.—Original contract placed with Odero-Terni-Orlando, 1931, cancelled 1932, and design modified by new builders when fresh contract was made. Both ships made 22 kts. on trials without being pressed. They are differentiated by the white band around funnel of *B. Dias.*

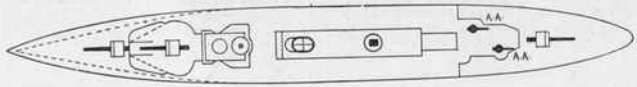
2nd Class (*Avisos de 2a Classe*).



GONÇALO VELHO (*Zarco* distinguished by white band on funnel). 1933 *Photo, Courtesy of builders.*

GONCALVES ZARCO (Nov. 28, 1932), **GONCALO VELHO** (Aug. 3, 1932). Built by R. & W. Hawthorn, Leslie & Co. Both vessels laid down October 9, 1931.

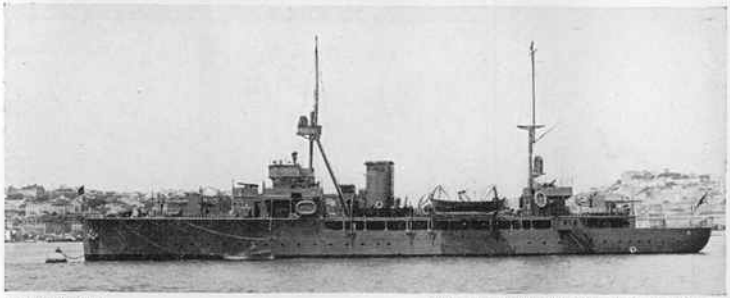
Displacement: (*Standard*): 966 tons; (*full load*): 1,436 tons. Complement: 128.
Dimensions: 250 (*pp.*), 268 (*o.a.*) × 35½ × 11¼ feet (*mean*). Guns: 3—4·7 inch, 50 cal., 2—40 mm. AA., 2 D.C.T. Machinery: Parsons geared turbines. S.H.P.: 2,000 = 16·5 kts. 2 screws. Boilers: 2 Yarrow. Radius: 9,831 miles at 11 kts. Oil: 335 tons *normal*, 470 tons *maximum*. Trials: 4 hours full speed = 17·4 kts.



B. DIAS. 1937, *R. Perkins.*

2nd Class (*Avisos de 2a Classe*)—*continued.*

JOÃO DE LISBOA. (Observe funnel band). 1938, *Capitaine M. Adam.*



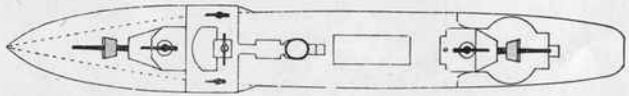
PEDRO NUNES. 1936, *courtesy Eng. Lt.-Com. Aluino Martins.*

PEDRO NUNES (1933), **JOÃO DE LISBOA** (ex-*Infante D. Henrique*). (May 21, 1936). Displacement: (*Standard*), 1,107 and 1,108 tons, respectively; (*full load*), 1,217 and 1,238 tons, respectively. Complement: 112/138.

Dimensions: *J. de Lisboa*, 234¼ (*p.p.*), *P. Nunes*, 223 (*p.p.*) × 32¾ × 9¼ feet (*mean*), 10½ feet (*max.*)

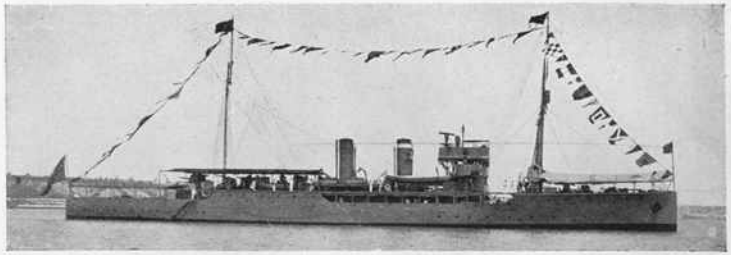
Guns:
2—4·7 inch, 50 cal.
4—40 mm. AA.
2—D.C.T.

Note to Plan.—Secondary armament is actually as stated, 4—40 mm. AA.



Machinery: 2 sets M.A.N. 8 cyc. Diesels. B.H.P.: 2,400 = 16·5 kts. Radius: 8,850 miles at 12 kts.. 4,800 at 16 kts. Oil: 110 tons *normal*, 126 tons *max.*

Notes.—Both built at the Naval Arsenal, Lisbon. *P. Nunes* laid down early in 1930. Unlike her sister ship, she is not part of ten-year programme introduced that year.



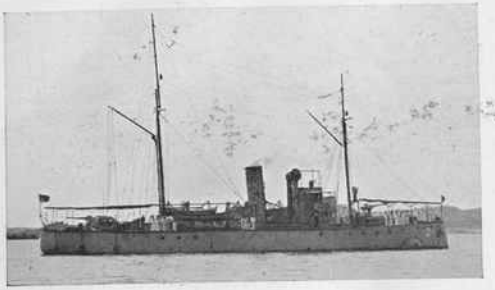
REPUBLICA. (Note white band on first funnel.) 1933, *Eng. Lt.-Com. Aluino Martins, P.N.*

REPUBLICA (ex-H.M.S. *Gladiolus*, launched Oct. 1915, by Chas. Connell & Co., Scotstoun.) Displacement: 963 tons *standard*, 1,258 tons *full load*. Dimensions: 255¼ (*p.p.*), 267¾ (*o.a.*) × 33½ × 11 (*mean*), 11¾ feet (*max.* draught). Guns: 2—4 inch (Vickers), 2—3 inch A.A. (Armstrong), 4—3 pdr. (Hotchkiss), 2 M.G. I.H.P.: 2,362 = 16·4 kts. Machinery: 1 set 3-cyl. triple exp. Boilers: 2 cylindrical. 1 screw. Coal: 295 tons (present normal stowage) = about 5,000 at 15 kts. Complement: 137. Built under British Emergency War Programme as a unit of the *Azalea* group of "Flower Class" Sloops. Sold to Portugal 1920. Refitted 1928-30 for Colonial Service.

Motor Torpedo Boats.

6 M.T.B. are projected.

Gunboats (*Canhoneiras*).



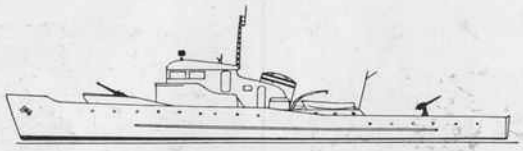
ZAIRE. 1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

DIU (Oct., 1925), **ZAIRE** (ex-*Goa*, Feb. 26, 1925), **IBO** (1911). **MANDOVI** (1917). All built at Lisbon D.Y. Displacement: 403 tons *standard*, 500 tons *full load*. Dimensions: 147⅝ × 27½ × 7 feet. Guns: 2—3 inch 40 cal. (Armstrong), 2—47 mm. (except *Mandovi*, which has only 4—47 mm.). H.P.: 700 = 13 kts. Coal: 85 tons. Radius: 3,200 miles at 9 kts. Machinery: Triple expansion. 2 shafts. Boilers: Cylindrical in *Ibo*, 2 Yarrow in others. Complement: 67.

Identification letters: *Diu*, none; *Ibo*, I; *Zaire*, Z; *Mandovi*, M.

Fishery Protection Vessels.

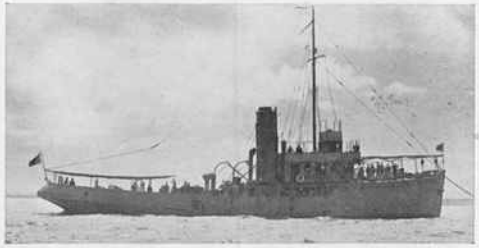
(*Canhoneiras da Fiscalização da Pesca*)



NEW CONSTRUCTION.

2 vessels, building at Lisbon. Displacement: 250 tons (*full load*). Complement: 25. Dimensions: 134½ (*p.p.*), 139¾ (*o.a.*) × 21½ × 7 feet (*max.*). Guns: 4—25 mm. AA. in twin mounts: Machinery: M.A.N. Diesel. 2 shafts. B.H.P.: 2,600 = 18 kts. Fuel: 25 tons. Radius of action: 2,500 miles at cruising speed, 850 miles at full speed.

(4 more of these vessels are projected.)



LAGOS. 1933 *Photo, Mr. Henrique Seixas.*

(Now has white band round funnel to distinguish from FARO).

FARO, LAGOS (1927). Built at Lisbon D.Y. Displacement: 300 tons. Dimensions: 120 (*p.p.*), 130½ (*o.a.*) × 22 × 10½ feet. Guns: 2—47 mm. H.P.: 650 = 13 kts. 1 Yarrow boiler. 1 screw. Radius: 2,000 miles at 7·5 kts. Oil: 42 tons. Complement: 55.

Fishery Protection Vessels—(*continued*).

LIDADOR. 1933, *Eng. Lt.-Com. Aluino Martins, P.N.*

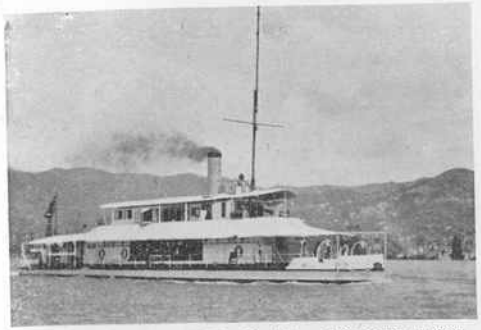
LIDADOR (Laird, Birkenhead, 1884). Iron. 201 tons. Dimensions: 113¾ (*p.p.*), 115 (*o.a.*) × 20 × 6½ feet. Guns: 2 Hotchkiss 47 mm. Machinery: 2 sets 2 cyl. Comp. H.P.: 400 = 11 kts. 2 screws. 1 cyl. Boiler. Coal: 40 tons = 1,528 miles at 7 kts. Complement: 40. Classed as a Tug, she is employed on Fishery Protection duties.

Lighthouse Tender. (*Navio Balizador*).

1934 *Photo, Official.*

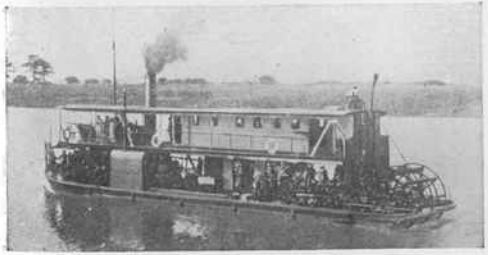
ALMIRANTE SCHULTZ (Penhoët, 1929). 529 tons. Complement: 48. Dimensions: 131½ × 31 × 10¾ feet. 2 sets Rateau Diesels. H.P.: 350 = 11 kts. Fuel: 21 tons.

River Gunboats (*Lanchas-Canhoneiras*).



1938, *Eng. Lieut.-Com. Aluino Martins da Silva.*

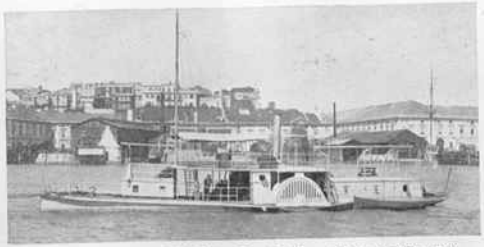
MACAU (Yarrow, 1909). 95 tons. Dimensions: 119⅔ × 19¾ × 2 feet. Guns: 2—6 pdr., 3 machine. H.P.: 250 = 11·8 kts. Boilers: 1 Yarrow. Complement: 24. On China Station.



1933 *Photo, Mr. Henrique Seixas.*

TÉTE (1918). Built by Yarrow & Co., Ltd., and re-launched at Chinde in 1920. Displacement: 100 tons. Dimensions: 76⅔ × 20 × 2¼ feet. Guns: 2—47 mm., 2 M.G. Machinery: Stern wheel propulsion. H.P.: 70 = 8 kts. 1 Yarrow boiler. Employed on Zambesi River.

River Gunboats—*continued.*



1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

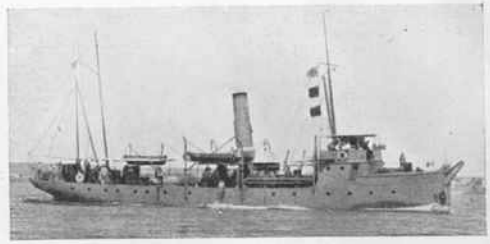
RIO MINHO (Lisbon D.Y., 1904). 38 tons. Paddlewheel. Dimensions: 80¾ × 13 × 2 feet. H.P.: 64 = 7½ kts. Guns: 1—1 pdr., 1 M.G. Complement: 68 are nominally borne on her books, the majority of these ranks and ratings being actually at various shore stations on the Portuguese bank of the river Minho, for fisheries inspection, customs duties, &c.

Patrol Vessel (*Patrulha*).

1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

LINCE (Orlando, 1911). 78 tons. Dimensions: 88½ × 14 × 6 feet. 2 sets semi-Diesels. B.H.P.: 300 = 12 kts. 2 screws. Complement: 20. Attached to Torpedo Training School.

Mining Tenders (*Lança-minas*).



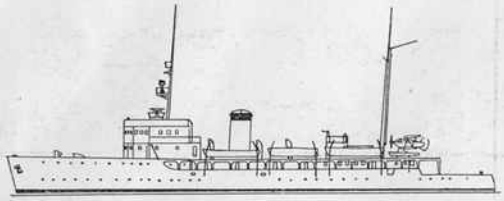
1933 *Photo, Mr. Henrique Seixas.*

VULCANO (Thornycroft, 1910). 129 tons. Dimensions: 110 × 19½ × 7¼ feet. H.P.: 500 = 13 kts. 2 screws. Thornycroft boiler. Complement: 27. Employed in Diving and Torpedo instruction, mounting 3 Torpedo Tubes for this purpose, besides Mine-dropping gear forward.

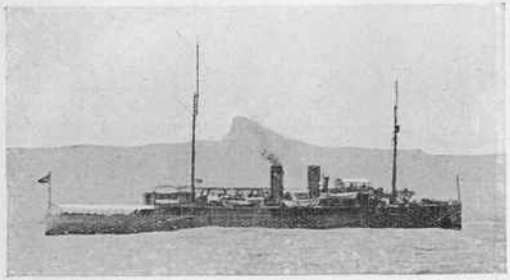
1933 *Photo, Mr. Henrique Seixas.*

MINEIRO (1892). 77 tons. Dimensions: 58½ × 13½ × 7 feet. I.H.P.: 150 = 8 kts. 2 screws. Coal: 10 tons. Complement: 18.

Surveying Vessels (*Navios Hidrograficos*).



DOM JOÃO DE CASTRO (April 22, 1940). Built at the new Naval Dockyard at Alfeite, opposite Lisbon. Displacement: 957 tons (1,140 tons *full load*). Dimensions: 206¾ (*pp.*), 219½ (*o.a.*) × 32½ × 9½ feet (*mean*). Guns: 1—3 inch. Machinery: 2 sets triple expansion by McKie & Baxter, Ltd., Paisley. I.H.P.: 1,400 = 13·5 kts. Boilers: 2 of 3-drum type by J. Samuel White & Co., Ltd. Oil fuel: 220 tons. Radius: 5,000 miles at 10 kts. 1 seaplane carried. Complement: 66.

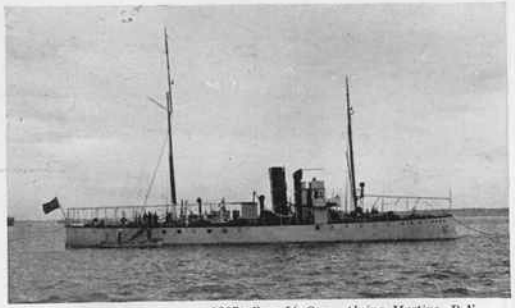


1940, *Official*

CARVALHO ARAUJO (ex-H.M.S. *Jonquil*, launched May, 1915, by Chas. Connell & Co., Scotstoun.) Displacement: 916 tons *standard*, 1,210 tons *full load*. Dimensions: 250 (*pp.*), 262½ (*o.a.*) × 33 × 11 (*mean*), 11¾ feet (*max.* draught). I.H.P.: 2,242 = 17·25 kts. Machinery: Triple expansion. Boilers: 2 cylindrical. Built under British Emergency War Programme as a unit of the *Acacia* group of "Flower Class" Sloops. Sold to Portugal, 1920. Refitted 1928–30 for Colonial Service. In 1937 adapted for use as a Surveying Vessel, guns being removed and a deckhouse for use of cartographers added immediately abaft mainmast. Complement: 90.

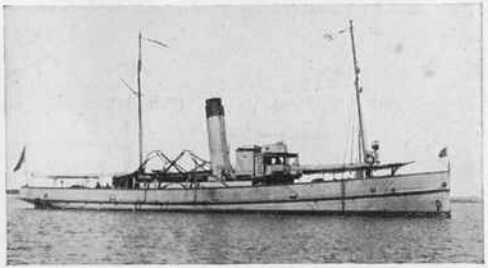
Note.—This ship is named after a Portuguese naval officer killed in action with a German submarine during the Great War.

Surveying Vessels—*continued.*



1937, *Eng. Lt.-Com. Aluino Martins, P.N.*

BEIRA (Lisbon, 1910). Ex-gunboat, adapted for Surveying in 1936. 403 tons. Dimensions: 147¼ × 27½ × 7 feet. Guns: 2—65 mm., 2—47 mm. Machinery: Triple expansion. 2 shafts. H.P.: 700 = 13 kts. Boilers: Cylindrical. Coal: 85 tons. Radius: 3,200 miles at 9 kts. Complement: 34.



1933 *Photo, Mr. Henrique Seixas.*

BERRIO (S.A. At. et Ch. Loire, 1897). 350 tons. Guns: nil. Compound engines. H.P. 1,070 = 10 kts. Coal: 103 tons. Complement: 68. Ex-Fleet Tug. Employed on Portuguese E. African Coast.

Oiler

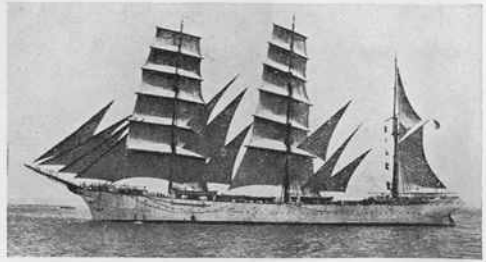
1 building at Alfeite. Displacement: 7,000 tons. Capacity: 3,500 tons. Dimensions: 410 × 50¾ × 18 feet. Guns: 1—3·9 inch AA. Machinery: B. & W. Diesel. B.H.P.: 2,500 = 12 knots.

Transport (*Transporte*).

1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

GIL EANES (ex-*Lahneck*) (Joh. C. Tecklenborg, 1914). 2,709 tons. Dimensions: 278 × 41 × 16·8 feet. Guns: 2—47 mm. H.P.: 1,400 = 11 kts. 1 screw. Cylindrical boilers. Employed as Hospital Ship on Fishery Service.

Training Ship (*Navio-Escola*).



1933 *Photo, Eng. Lt.-Com. Aluino Martins, P.N.*

SAGRES (ex-*Flores*, ex-*Max*, ex-*Rickmer Rickmers*). (Bremerhaven, 1906). Displacement: 3,116 tons (1,980 tons *gross*). Dimensions: 263½ × 40½ × 19 feet. Guns: 4—57 mm. Machinery: 2 sets Krupp Diesels. B.H.P.: 700 = 8 kts. 2 screws. Complement: 181 (+ 196, personnel under training). Captured German sailing vessel, adapted as a naval training ship, 1924–27; auxiliary motors fitted in 1931.

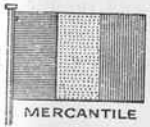
ROUMANIA.

FLAGS

ENSIGN

ROYAL STANDARD

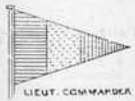
JACK



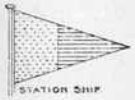
MERCANTILE

COMMANDER-IN-CHIEF*

MINISTER OF MARINE AND AIR



LIEUT. COMMANDER



STATION SHIP

VICE-ADMIRAL

REAR-ADMIRAL

CAPTAIN OR COMMANDER

Red
White
Blue
Yellow

* When the C. in C. is a Vice-Admiral, as at present, this flag carries two stars and crossed anchors.

Secretary-General, Marine Dept.: Contr' Amiral Alexandru Gheorghiu.

Commander-in-Chief and Director General of the Navy: Vice-Amiral Petre I. Bărunbeanu.

Naval Attaché, London: Contr' Amiral Gheorghe St. Dumitrescu, C.V.O.

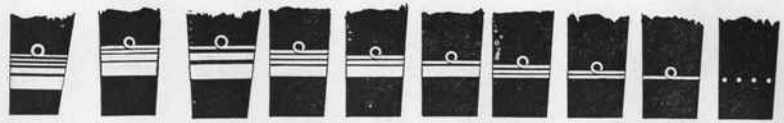
Mercantile Marine 1939: 35 vessels of 111,678 gross tonnage.

Colour of Ships: Light grey.

Personnel: 250 officers, 3,000 men.

Form of Address: "N.M.S." ("Nava Majestății Sale").

Uniforms.



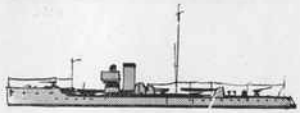
Amiral (*British Admiral*)	Vice-Amiral. (*British Vice-Admiral.*)	Contr'Amiral. (*British Rear-Admiral*)	Comandor. (*British Captain.*)	Capitan-Comandor. (*British Commander.*)	Locotenent-Comandor. (*British Lt.-Com.*)	Capitan de Marină (*British Senr.-Lieut.*)	Locotenent de Marină (*British Lieutenant.*)	Aspirent de Marină (*Sub-Lieut.*)	Elev din Școala de Marină. (*Midshipman*)

There is also the rank of Admiral of the Fleet, held only by the King, (as Admiral, but 4 thin stripes).

Stripes are gold (except Paymasters, who wear silver) with curl for all branches. Colour of silk between, above and below stripes:—Executive, black; Engineers, violet; Surgeons, dark red, almost purple in colour: Constructors, light blue; Apothecaries, green; Musical Director, light grey.

LT. LEPRI REMUS *class* (4).

CONSTANTA.

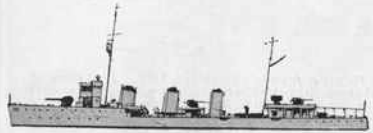


SBORUL.

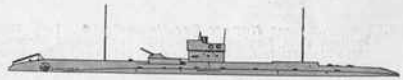
NALUCA. SMEUL.

LUCEAFARUL.

REGELE FERDINAND. REGINA MARIA.



MARASTI. MARASESTI.

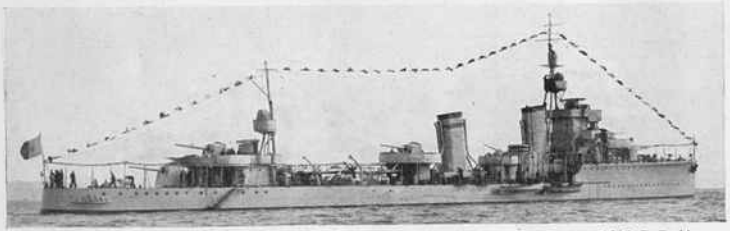


DELFINUL.

ROUMANIA—Destroyers (*Distrugătoáre*) and M.T.B.

(1) Black Sea Division (*Divizia de Mare*).

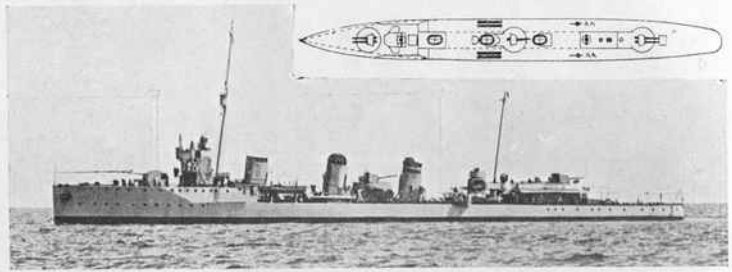
REGELE FERDINAND (Note band around fore funnel) 1935.



REGINA MARIA. (Note band around after funnel.) 1937, *R. Perkins.*

2 *Thornycroft type:* ***Regele Ferdinand*** (Dec. 2nd, 1928), ***Regina Maria*** (March 2nd, 1929). Laid down at Pattison Yard, Naples, in June, 1927, to design of Messrs. Thornycroft. Displacement 1900 tons. Dimensions: 334 × 31¼ × 11¼ feet. Parsons geared turbines by Stabilimento Tornico Triestino. H.P. 48 000 = 35 kts. Radius: 3,000 miles at 15 kts. Armament: 5—4·7 inch, 50 cal., Bofors, 1—3 inch AA., Bofors, 2—2 pdr. AA., 2 M.G., 6—21 inch torpedo tubes (triple), 50 mines. Firing Director of Siemens type. Cost per ship, without armament £205,000: completed 1930. Complement, 212.

Note.—Regina Maria refitted at Malta, 1938.



(*Equipped for minelaying*) 1932.

2 *Pattison type:* ***Marasti*** (ex-Italian *Sparviero*, 1919), and ***Marasesti*** (ex-Italian *Nibbio*, 1918). 1391 tons *normal* (1723 tons *full load*). Dimensions: 309¼ (*p.p.*) × 31 × 11¼ feet. Guns: 5—4·7 inch, 2—3 inch. 40 cal. AA. 2 M.G. Tubes: 4—17·7 inch in twin deck mountings. Searchlights: 1—36 inch. Designed S.H.P. 45,000 = 34 kts. Trials: *Marasesti*, 48,020 S.H.P. = 38·04 kts., 2 Tosi turbines. 2 screws. 5 Thornycroft oil burning boilers. Oil: 260 tons = 1700 miles (15 kts.), 380 miles (full speed). Complement: 139.

Notes.—Belong to class of 4 Destroyers, *Vifor, Viscol, Vârtej, Vijelia*, ordered for Roumanian Navy about 1913. Were requisitioned for Italian Navy during war and re-named *Aquila, Falco, Nibbio, Sparviero*. Last two re-purchased by Roumania 1920, and renamed after actions fought in 1917. Refitted and rearmed at Galatz and Naples, 1925-26.

Motor Torpedo Boats.

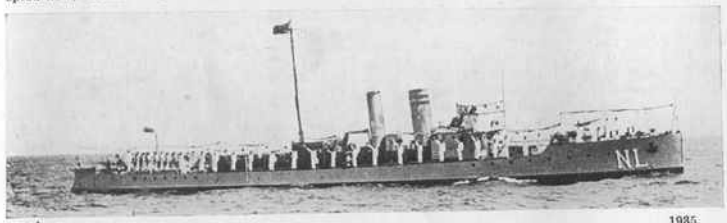
1940, *courtesy "The Motor Boat."*

Three boats (Vosper, Portsmouth, 1939). Displacement: 32 tons. Dimensions: 72 × 16½ × 3¾ feet. Armament: 2—21 inch torpedo tubes, 2 M.G. AA. Machinery: 3 Isotta-Fraschini petrol motors. B.H.P. 3,450 = over 40 kts.

3 Torpedo Boats. (*Torpiloare*).

1934.

1 Ex-Austrian boat: ***Sborul*** (ex-*81T*), (Stab Tecnico Triestino, Trieste, 1914). Displacement: 262 tons. Dimensions: 189½ × 19 × 5 feet. Guns: 2—11 pdr.; Torpedo tubes: 4—17·7 inch. Designed S.H.P. 5000 = 28 kts. (24 best speed now) Turbine engines and Yarrow boilers. Fuel: 18 tons coal + 24 tons oil. *Sborul* means Flight.



1935.

NĂLUCA.

2 Ex-Austrian boats: ***Năluca*** (ex-*82F*), ***Smeul*** (ex-*83F*), (Ganz-Danubius Co., Porto Ré, Fiume, 1913-14.) 260 tons. Beam, 19 feet. Guns: 2—11 pdr., 2 M.G. No tubes. 1—16·5 inch S.L. Fuel: 20 tons coal + 34 tons oil, other details as *Sborul* above. *Smeul* = Dragon. *Năluca* = Phantom.

Submarines.

Note.—2 more submarines are building in the Naval Dockyard at Galatz.

1 *Quarnaro* boat: ***Delfinul.*** (June 22, 1930). Displacement: 650 tons. Dimensions: 225 × 19½ × 12 feet. Guns: 1—4 inch, 35 cal. Tubes: 8—21 inch. Speed 14 kts. Completed 1931, but not taken over by Roumania until April, 1936.

Minelayers (*Puitocre de Mine*)

Photo wanted

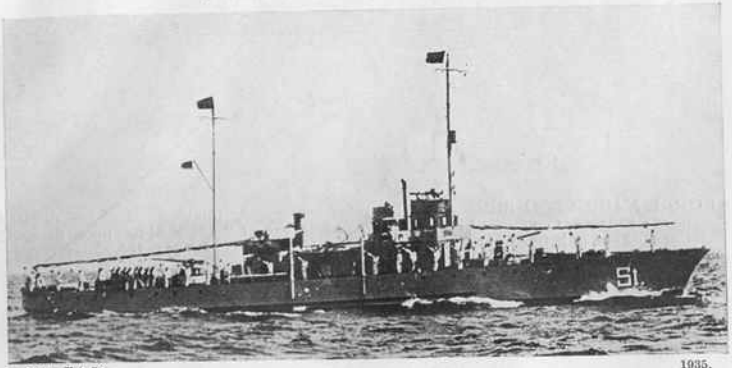
AMIRAL MURGESCU (Galatz, June 14, 1939) and another (building). *Standard* displacement: 812 tons. Complement: 78. Dimensions: 252½ (*o.a.*) × 29½ × 8½ feet (*mean* draught). Guns: 2—4 inch (dual purpose), 2—37 mm. AA., 2 D.C.T. Mines: 135. Machinery: 2 Krupp Diesels. B.H.P.: 2,100 = 16 kts. Radius of action: 3,400 miles at 12 kts.

Submarine Depot Ship (*Navă Bază*).

1931.

CONSTANTA (November 8, 1928). Laid down at the Quarnaro Yard, Fiume, August 15, 1927, completed in 1931. Displacement: 1,350 tons. Dimensions: 255¾ × 37 × 13¼ feet. 2 sets Diesels. B.H.P.: 1,000 = 13 kts. Radius: 12,000 miles. Guns: 2—4 inch, 2—40 mm. 3 sets generating sets. H.P.: 136. Fitted with engineering and torpedo shops; bakery; torpedo loading room; salvage, diving and submarine signalling apparatus.

(Black Sea) **Gunboats** (*Canoniere*).



STIHI EUGEN. 1935.

LOCOTENENT LEPRI REMUS (ex-French *Chiffonne*, Lorient D.Y. launched 1917).

LOCOTENENT-COMANDOR STIHI EUGEN (ex-French *Friponne*, Lorient D.Y., launched 1916).

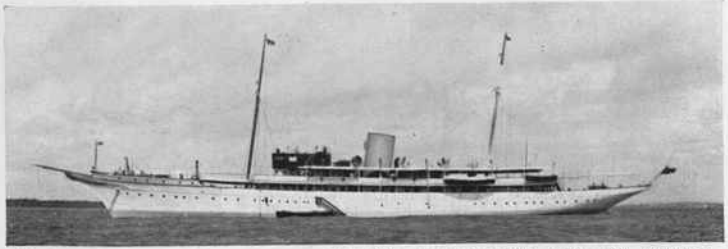
SUBLOCOTENENT GHICULESCU (ex-French *Mignonne*, Brest D.Y., launched 1917)

CĂPITAN DUMITRESCU C. (ex-French *Impatiente*, Brest D.Y., launched 1916).

Displacement: 400, 450, 390, 350 tons respectively. Length: 189½ to 199¾ ft. Beam: 22 ft. 7 in. Draught: first pair, 9½ ft.; second pair, 7¾ ft. Guns: 2—3·9 inch. 2 M.G. S.L.: 2—15·7 inch. Engines: 2 sets of Sulzer Diesel motors. B.H.P. 900 = 15 kts. Fuel carried: 30 tons oil = 3000 miles (10 kts.), 1600 miles (15 kts.) Complement, 50.

Notes.—Purchased from French Navy, Jan. 9, 1920. Entered service Jan. 15, 1920. Are differentiated by coloured rings around crowsnest and initials on bow. Names are those of naval officers killed in action, 1916–18.

Royal Yachts.



LUCEAFARUL. *Added 1937, courtesy Messrs. G. L. Watson & Co., (Designers).*

LUCEAFARUL (ex-*Nahlin*). (Clydebank, 1930). Purchased 1937. Displacement, 2,050 tons. Dimensions: 250 (*w.l.*), 296 (*o.a.*) × 36 × — feet. Machinery: 4 Brown Curtis geared turbines. 2 shafts. S.H.P.: 4,000 = 17·5 kts. Oil fuel.

TAIFUN (J. Samuel White & Co. Ltd., Cowes, 1938). Wood. 34 tons Thames measurement. Dimensions: 54 × 12½ × 3 feet. Machinery: 2 petrol motors. 2 shafts.

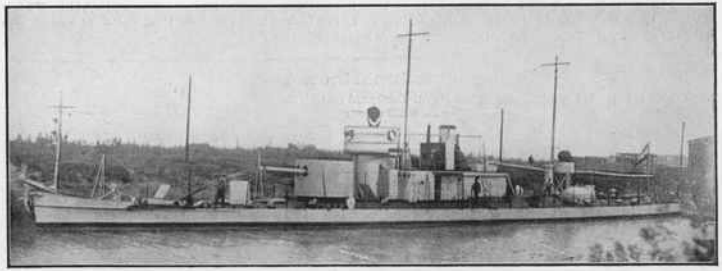
(2) **Danube Division** (*Divizia de Dunăre*).

Monitors (*Monitoare*).

Note.—With exception of *Bratianu* class, all are named after Roumanian provinces acquired after the Great War.

(Now has 2 white bands around funnel. Has flush deck forward.)

BUCOVINA (ex-Austro-Hungarian *Sava*, launched 1915). Displacement, 550 tons. Dimensions: 190¼ × 33·8 × 4½ feet. Guns: 2—4.7 inch, 45 cal. Skoda (paired in single turret forward) + 2—4.7 inch, 10 cal. howitzers (fortress type, singly mounted in pits with cupola protection), 2—66 m/m. (AA., twin-mounted in turret), 2—47 m/m., and 6 M.G. 1—24 inch searchlight. Armour: 1½" Belt and Bulkheads, 1" Deck, 2" C.T., 2" Turret and Cupolas. 3 magazines with water-jackets and electric-controlled refrigerators. Designed H.P. 1600 = 12 kts. Boilers: Yarrow. Fuel: 75 tons, oil *only*. Complement, 90 to 100. Built under 1914-15 Austro-Hungarian Naval Programme, completed 1915. Interned at Novi Sad 1919-20 and handed over by Yugo-Slavs at Orsova early in 1921. Sister ship, *Drava*, now unit of Yugo-Slav Danube Flotilla.



BASARABIA (ex-Austro-Hungarian *Inn*, launched 1915). Displacement, 590 tons. Dimensions; 203½ (*o.a.*) × 34½ × 4½ feet. Guns: 2—4.7 inch, 45 cal. + 3—4.7 inch, 10 cal. howitzers, 2—47 m/m., 9 M.G. Armour: 1½" Belt and Bulkheads, 1" Deck, 2" Turret and Cupolas, 2" C.T. Designed I.H.P. 1500 = 12 kts. Boilers: Yarrow. Fuel: 70 tons, oil *only*. Complement, 100. Built under Austro-Hungarian 1912 Naval Programme; interned at Novi Sad 1919-20, handed over by Yugo-Slavs at Orşova early in 1921. Sister ship, *Vardar*, now unit of Yugo-Slav Danube Flotilla is shown above.

(Danube) **Monitors**—*continued.*

L. Catargiu. 1934

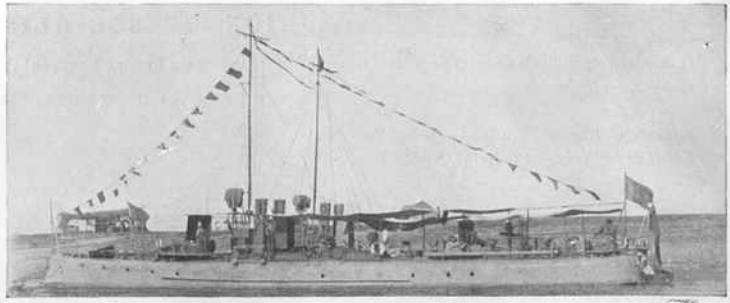
ION C. BRĂTIANU (1907), **MIHAIL KOGĂLNICEANU** (1907), **ALEXANDRU LAHOVARI** (1908), and **LASCĂR CATARGIU** (1907). Displacement: 680 tons. Complement, 110. Dimensions: 208½ × 33¾ × 5½ feet. Guns (Skoda): 3—4.7 inch, 35 cal. (2—4.7 inch howitzers removed during the War), 1—3 inch. AA., 2—47 m/m., 2 M.G. 1—30.7 inch searchlight. Armour: 3″ Belt, 3″ Deck, 3″—2″ Turrets. H.P. 1800 = 13 kts. Coal: 60 tons. Built by Stabilimento Tecnico Triestino, at Trieste, in sections, re-erected at Galatz. Deck cabins, military masts and howitzers removed during the War, and funnel modified. All named after nineteenth century Roumanian statesmen.

1922 *Photo.*

ARDEAL (ex-Austro-Hungarian *Temes*, 1904). Displacement: 450 tons. Complement, 80 to 90. Dimensions: 183½ × 31½ × 3¾ feet. Guns: 2—4.7 inch, 35 cal., 1—3.5 inch AA., 2—47 m/m., 4 M.G. Armour: 1½″ Belt, 3″ and 1½″ Turrets, 1½″ Bulkheads, 1″ Deck. H.P. 1400 = 10 kts. Fuel capacity: 60 tons. Was originally built as a sister-ship to *Sava*, of Yugo-Slav Navy. While serving on Danube as Austro-Hungarian *Temes*, she was sunk in October, 1914, but was raised in June, 1916, and entirely rebuilt 1916-17; she is thus, compared with others of the same original design, a practically new Monitor. Re-entered service April, 1917. Interned at Novi Sad, 1919-20; handed over at Orsova by Yugo-Slavs early in 1921. Easily identified by her tall, thin funnel and raised gun aft, mounted during reconstruction, 1916-17. No other Monitor exists with this arrangement, except Yugo-Slav *Morava*, and her guns are not all in turrets.

Note.—Ardeal is the Roumanian name for the province of Transylvania.

(Danube) **Patrol Vessels** (*Vedete*).



1922.

No. 3, (ex-*Căpitan Romano Mihail*) **No. 7,** (ex-*Locotenent Călinescu Dimitrie*), (Thames Iron Works, 1906) Displacement: 50 tons. Dimensions: 100 × 13 × 2¾ feet. Armament: 1—47 m/m. Skoda 1 machine. 1—20 inch S.L. 2 screws. H.P.: 550 = 18 kts. Oil fuel: 7½ tons. Complement: 20. Differentiated by large coloured numerals on funnels. Their two twin funnels, ram bows and round tunnel sterns make their recognition easy. *Capt. V. Mîrăcineau* mined 1916, and 5 others scrapped. All were originally named after Army officers who fell in the War of Independence, 1877.

(Black Sea) **Sail Training Ship.** (*Vas Școală*)

1940, *Official.*

MIRCEA (Blohm & Voss, Hamburg, Sept. 22, 1938). Displacement: 1,604 tons. Dimensions: 239½ (*o.a.*), 267½ (*with bowsprit*) × 39½ × 16½ feet. Auxiliary M.A.N. 6-cylinder Diesel. B.H.P.: 500 = 9·5 kts. Sail area: 18,830 sq. ft. Complement: 83 + 140 junior officers for training. Laid down April 30, 1938, and delivered March 29, 1939.

RUSSIA.

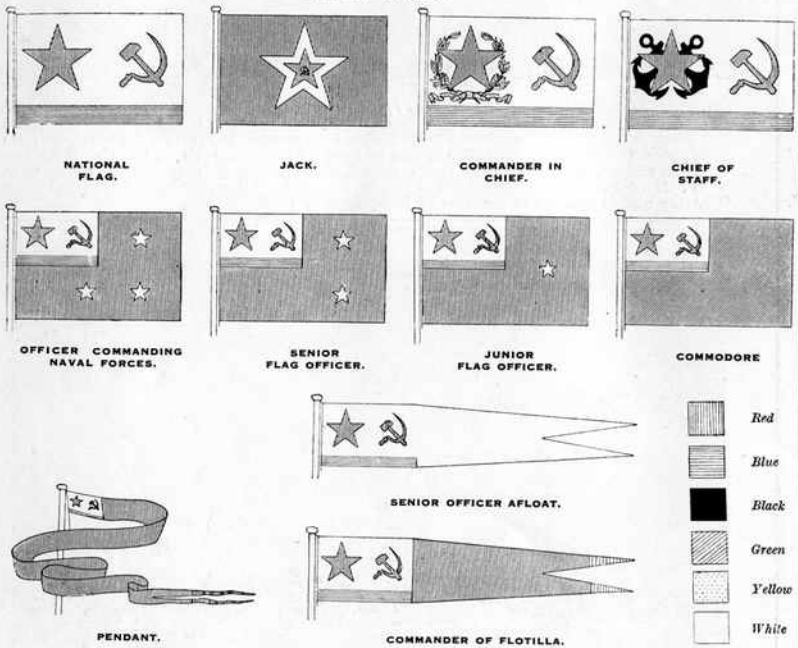
UNION OF SOCIALIST SOVIET REPUBLICS.

It is extremely difficult to secure accurate information regarding the Russian Navy, but the particulars given in these pages were revised and compared with data from reliable sources in 1940.

Displacements of more important ships are standard.

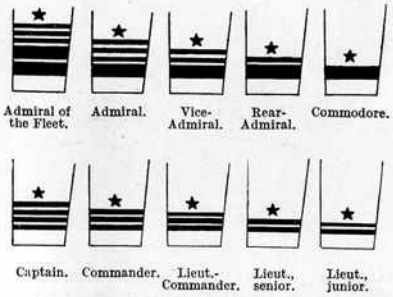
Minister of War and Marine.—Marshal Timoshenko.
Komissar for Navy.—Admiral G. Nikolai Kuznetsov.

Naval Flags.



Mercantile Marine.

From "Lloyd's Register," 1939 figures, 716 vessels of 1,315,766 *gross* tonnage.



Expansion and Distribution of Fleet.

It has been officially stated that the number of new warships completed during 1939 totalled 112, and that in 1940 the figure was expected to be 168.

Reports from Japanese sources indicate that the Soviet Fleet based on Vladivostok includes 70 submarines, over 50 motor torpedo boats and a number of patrol vessels of various types. "Fighting Ships" has secured independent evidence which goes far to support these figures.

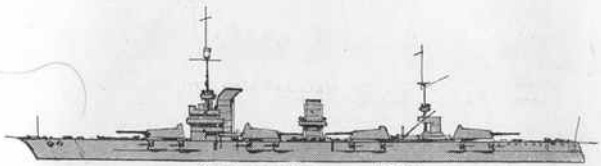
Most of these vessels are believed to have proceeded to their present station by way of North East Passage. Main base is at Vladivostok, with subsidiary stations at Madny and Bering, in Komandirski Islands.

Personnel: 23,600 (about 10,000 seagoing). These figures have been largely increased.

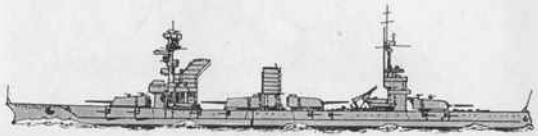
Modern Naval Guns (Obukhoff).

Designation.		Length in Calibres.	Weight of Guns.	Weight of A.P. Shot.	Initial Velocity (approximate).	*Maximum* Penetration with A.P. Capped Shell against K.C. Armour.			Danger Space against average warship at			Usual Rounds per minute.
						10,000 yds.	5000 yds.	3000 yds.	10,000 yards.	5000 yards.	3000 yards.	
C.M.	inch.	calibres.	tons.	lbs.	f.s.	in.	in.	in.	yards.	yards.	yards.	
30·5	12	52	48·2	714	3000	...	14½	20	...	...	...	...
18·0	7·1	55										
15·2	6	45	7½	89	2900	...	4½	6	60	250	485	3
15·2	6	45	7	89	2600	...	3½	5	50	200	430	3
13·0	5·1	55/60	...	..	...	...	...	...	...	...	..	...
12·0	4·7	50	2¼	46	2600	...	...	...	...	...	...	about 4
10·2	4	...	...	...	...	...	...	...	...	...	...	...
10·0	3·9	60	...	...	..	...	...	...	...	...	...	...
7·5	3	60	14 cwt.	13½	2700		...	...	...	...	...	...
6·3	2·5	35	12 ..	13½	2600		...	...	...	...	...	...

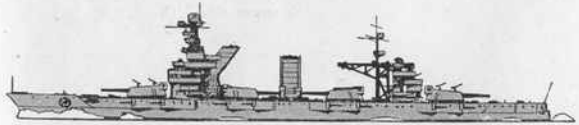
(B)—*Baltic.* (BS)—*Black Sea.* (C)—*Caspian.*



PARISKAYA-KOMMUNA. (B.S.)
(Now has tripod foremast, and may have catapult.)



MARAT (B)



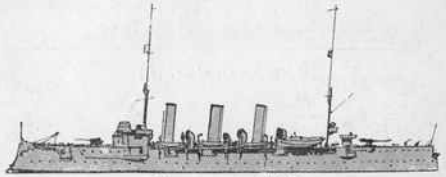
OKT. REVOLUTIA. (B)

KIROV *class.* (B) and (B.S.)
(Individual ships may vary.)

KRASNI-KAVKAZ. (B.S.)

PROFINTERN, CHERVONAYA UKRAÏNA. (B.S.)

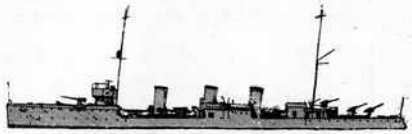
MARTI (B)



KOMINTERN. (B.S.)

(B)—*Baltic.* (BS)—*Black Sea.* (C)—*Caspian.*

STREMITELNI *class.* (B)



FRUNZE. (B.S.)

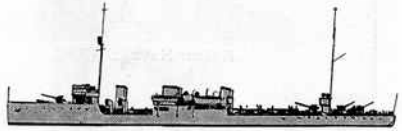
MARTINOV *class.* (B)

BESPOSHTADNI *class.* (B.S.)

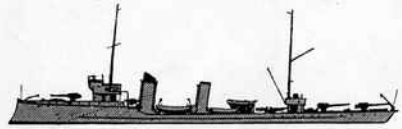
PETROVSKI *class.* (B.S.)

ZHELESNIAKOV *class.* (B)

SHTORM *class.* (B)

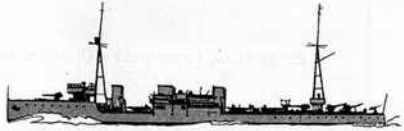


STALIN *class.* (B)
(No tripods.)



KONSTRUKTOR. (B)

LENINGRAD *class.* (B)

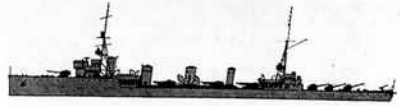


RYKOV. (B)
(Observe tripods.)

MARKIN *class.* (C)

TASHKENT

KARL MARX *class.* (B)



ex-YAKOV SVERDLOV. (B)

(B)—*Baltic.* (BS)—*Black Sea.* (C)—*Caspian.*

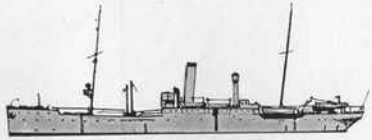
DZERZHINSKI *type* (Far East).

ZNAMYA-SOZIALISMA. (B.S.)

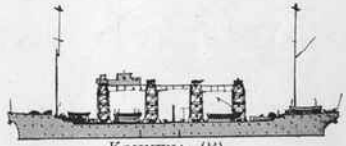
TREVOLEV. (B) LENINGRADSKI SOVIET. (B)
(Vary in details.)

SVIR.

FUGAS *class.* (B. and Far East).

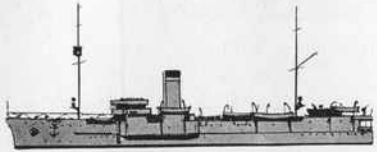


SERP-I-MOLOT (B)



KOMMUNA. (B)

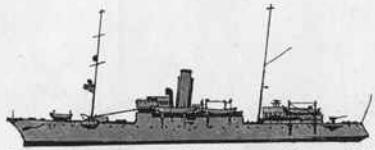
VOROVSKY (Far East).



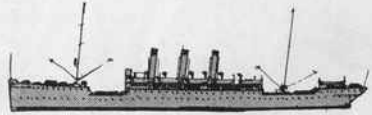
25 OKTIABRYA. (B)

POLARNAYA SVIEZDA.

KRASNI-AZARBAIJAN. (C)
LENIN. (C)



DEVIATOE-YANVARYA. (B) PERVOE-MAYA. (B.S.)
(Latter is without after superstructure.)



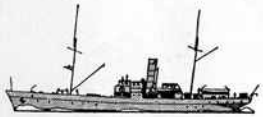
KOMSOMOLETZ. (B)

(B)—*Baltic* (BS)—*Black Sea* (C)—*Caspian*

KRASNAYA ABKHASIA *class* (BS)

UDARNIK (B)

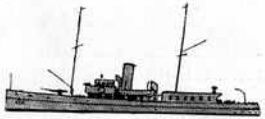
KRASNI GORN (B)
KURSANT (B)



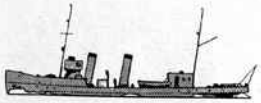
ASTRONOM (B)

PIONIR *class* (B)

BERESINA *class*. (B)



SPARTAK (B)



DOZORNI, RAZVYEDCHIK (B)

MU. 40-54. (B)

KRASNOFLOTETZ *class* (B)

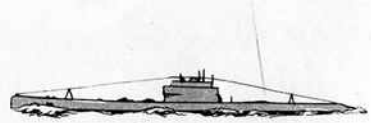
L 55. (B)

KOMMUNIST *class*. (B)

MALODKI *type*.

DEKABRIST *class*. (B)

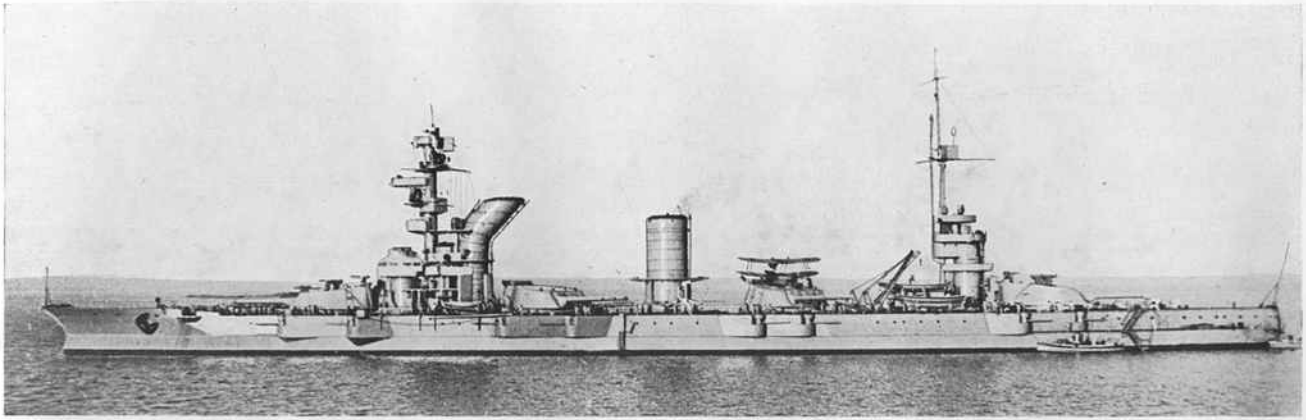
YAKOBINETZ *class* (B.S.)



CHUKA *class*.

LIN *type*.

PRAVDA *class*.



MARAT. 1935, *Nautical Photo Agency.*

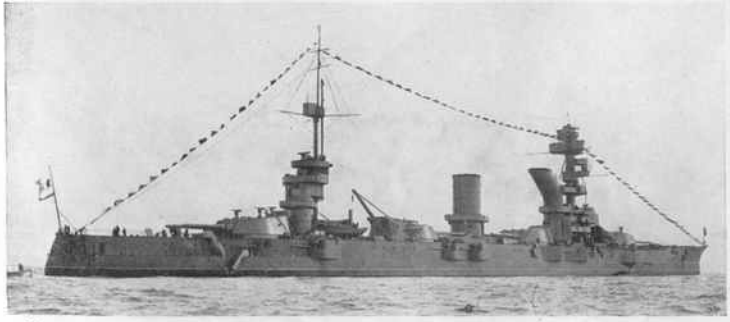
New Construction

TRETI INTERNATIONAL

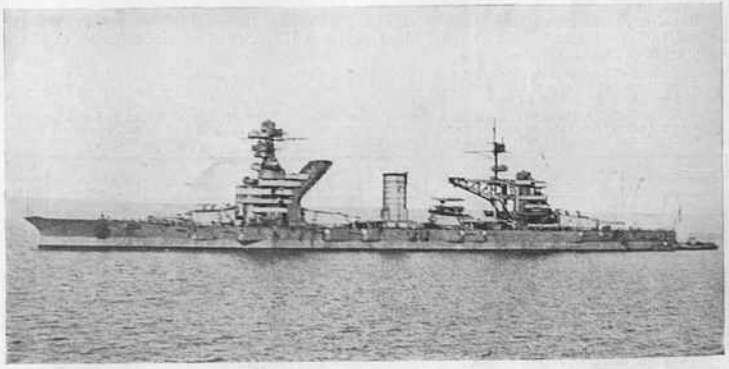
Laid down at Orjonikidze Yard, Leningrad, July 15, 1939, guns, armour and boilers having been ordered abroad, mostly in Germany and U.S.A. (Bethlehem Company). Progress so far has been very slow. *Standard* Displacement: 35,000 tons. Approximate dimensions 820 × 110 feet. To be armed with 9—16 inch 12—6 inch or 5·1 inch and 24 smaller guns. Aircraft: 4, with 1 catapult. Machinery: Geared turbines. Speed: 30 kts. Water-tube boilers of 3-drum type. Oil fuel.

Note.—Two more ships of this class are to be built, one of which is reported to have been laid down at Nikolaiev. It has been suggested that these two may be 40,000-ton ships.

(*For particulars of ships illustrated here, see following page.*)



MARAT. 1937, *R. Perkins.*



OKT. REVOLUTIA. 1935 *Nautical Photo Agency.*

RUSSIA—Battleships

PARISKAYA-KOMMUNA (ex-*Sevastopol*, June, 1911),

MARAT (ex-*Petropavlovsk*, Sept., 1911),

OKTIABRSKAYA-REVOLUTIA (ex-*Gangut*, October, 1911).

Standard displacement, 23,016, 23,606 and 23,256 tons, respectively; *full load*, over 26,000 tons. Complement, 1125 (1230 as flagship).

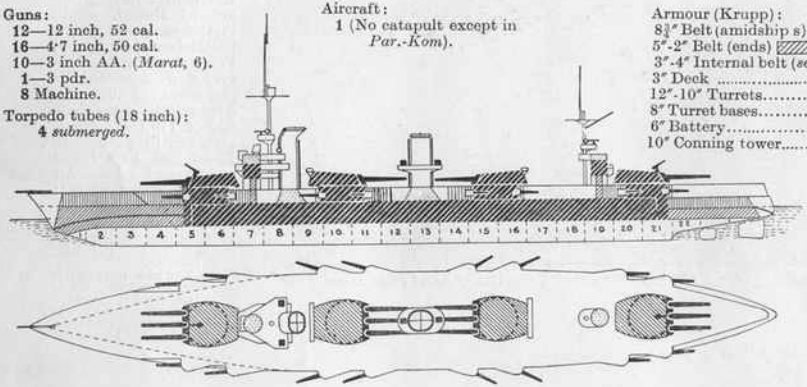
Length *over all*, 619 feet. Beam, 87 feet. *Mean* draught, 27½ feet.

Guns:
12—12 inch, 52 cal.
16—4·7 inch, 50 cal.
10—3 inch AA. (*Marat*, 6).
1—3 pdr.
8 Machine.

Torpedo tubes (18 inch):
4 *submerged*.

Aircraft:
1 (No catapult except in *Par.-Kom*).

Armour (Krupp):
8¾" Belt (amidship s) ..
5"-2" Belt (ends)
3"-4" Internal belt (*see notes*)
3" Deck .....
12"-10" Turrets.....
8" Turret bases.....
6" Battery.....
10" Conning tower.....



Machinery: Parsons turbine. 4 screws. Boilers: 25 Yarrow. Designed H.P. 42,000 = 23 kts. Coal *normal*, 1,000 tons; *maximum*, 2000 tons. Also 1,170 tons oil. Radius of action: 900 miles at 23 kts., 4,000 miles at 16 kts.

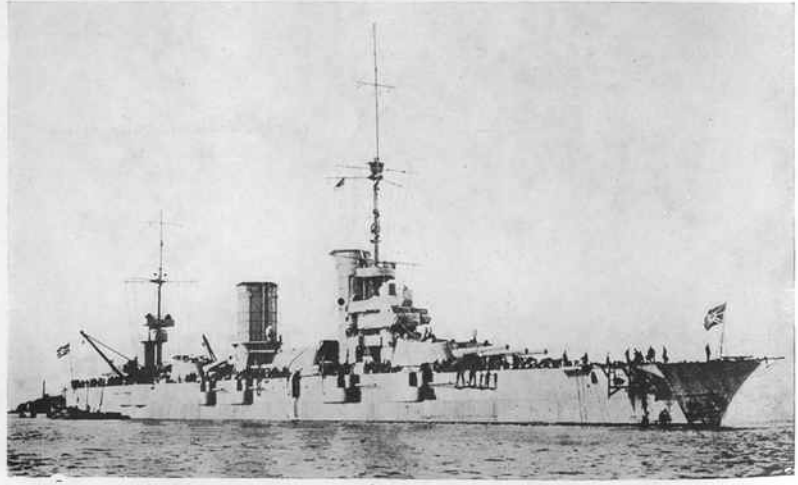
Gunnery Notes.—The port plate above each gun is in the form of a hinged flap, allowing each 12-inch gun to elevate to 30—40° *maximum*. Arcs of fire: End triple 12-inch barbettes, 310°; central barbettes, 130° *each beam*; aft group of 4—4·7 inch, 90°; other 4·7 inch, 85°.

Armour Notes.—Belt is about 15 feet wide, 5 feet of it below water, uniform thickness. There is a *secondary* 3"-4" internal belt 11 feet inboard above protective deck, extending between the end barbettes. The space between main belt and internal belts is divided up into w.t. compartments.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials: Full power*	*Boilers*	*Best recent speed*
Marat	Baltic Works	Baltic Works	June,'09	Jan. '14	About 50,000 = 23·4	Yarrow	18
P.Kommuna		Franco-Rus. Works	June,'09	Jan. '15			16
Okt. Revolutia	Galernii			Jan. '14			18

General Notes.—The late Gen. Vittorio Cuniberti prepared the original designs for this type. The Ministry of Marine afterwards altered the plans to include Russian ideas of armouring, ice-breaking bows and other special features. Further, to obtain a higher speed, hull design is relatively lighter than in contemporary battleships of other fleets. Said to be most unhealthy, insanitary and badly ventilated. *Pariskaya-Kommuna* proceeded to Black Sea early in 1930 in company with *Profintern*. General condition reported to be unsatisfactory, and official explanation of her remaining in Black Sea is that she could not face the return passage. But she has since undergone an extensive refit (1931). *Marat* and *Okt. Revolutia* were refitted 1926–28.
A fourth ship of this type, *Mihail Frunze*, is understood to have been scrapped.

MARAT 1937, *R. Perkins.*



PARISKAYA-KOMMUNA (Now has tripod foremast, aircraft and catapult). 1930 *Photo.*

Aircraft Carriers.

KRASNOYE ZNAMYA, VOROSHILOV

Displacement: 12,000 tons. Complement: .
Dimensions: Not reported.

Guns: Aircraft: 40.
12—4 inch AA.

Machinery: Geared Turbines. Speed: 30 kts.

Note.—Krasnoye Znamya is said to have been laid down at Leningrad in 1939, but is unlikely to be launched before 1941 at earliest. *Voroshilov* begun 1940. Both ships are believed to be of American design.

Photo wanted

STALIN (ex-*Krasnaya Bessarabia*, ex-*Admiral Kornilov*), (Oct. 4, 1937).

Displacement: 9,000 tons. Complement:
Dimensions: Not reported.

Guns: Aircraft:
Not reported. 22.

Machinery: Geared turbines. Speed: 30 kts.

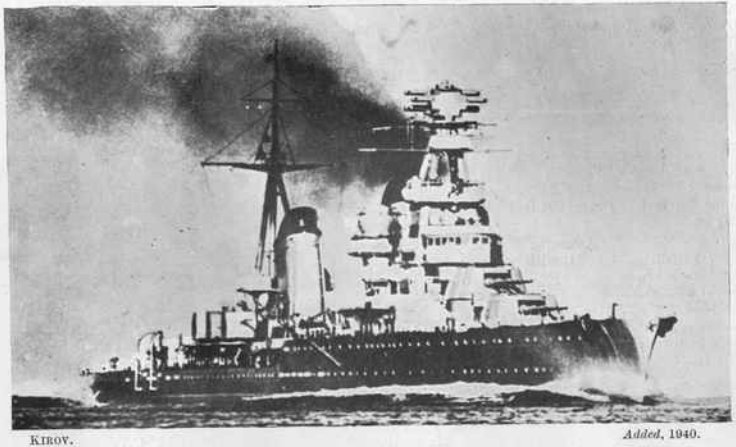
Note.—Laid down at Nikolaiev, 1914, as a cruiser, and construction suspended until 1929, when she was re-designed as an aircraft carrier and extensive alterations put in hand. Completed in 1939.

Notes.—Design and technical direction of construction said to have been furnished by Ansaldo. Supposition that these four ships are the re-designed hulls of the *Admiral Butakov, Admiral Spiridov, Admiral Greig* and *Admiral Istomin* appears to be unfounded. More cruisers of this type are said to be projected.

Name.	*Builder.*	*Machinery.*	*Laid down.*	*Completed.*
Kirov	Putilov D.Y.	Tosi, Taranto	1934	Aug., 1937
M. Gorki			1934	1939
Kubyshev	Marti Yard, Nikolaiev		1935	*To be*
Orjonikidze	Marti Yard, Nikolaiev		1935	1940-41

Cruisers.

(Kirov Class—4 Ships)



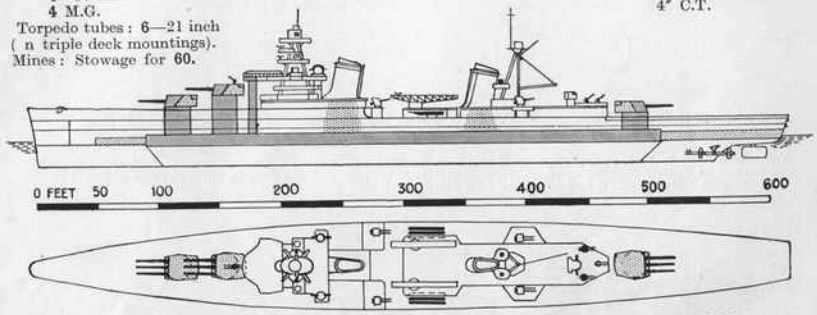
KIROV. *Added*, 1940.

KIROV (1936), MAKSIM GORKI (1937), KUBYSHEV (1939), ORJONIKIDZE (*building*).

Displacement: 8,800 tons. Complement: 624.
Length: 627¼ feet (*o.a.*). Beam: 64 feet. Draught: 17 feet (*mean*), 21 feet (*max.*)

Guns: Aircraft: 4. Armour:
9—7·1 inch. Catapult: 1. 2″—3″ Side.
6—4 inch AA. (2 later ships, 8—4 inch AA.) 2″ Deck.
4—37 mm. AA. 3″—4″ Gunhouses.
4 M.G. 4″ C.T.

Torpedo tubes: 6—21 inch (in triple deck mountings).
Mines: Stowage for 60.



Machinery: Geared turbines with Diesels for cruising speeds. 4 shafts. S.H.P.: 100,000 = 35 kts. (actually less). Fuel capacity (oil only) not believed to be extensive.

KRASNI KAVKAZ (ex-*Admiral Lazarev*, June, 1916. Nikolaiev).

Displacement: 8,030 tons. Complement: 624.

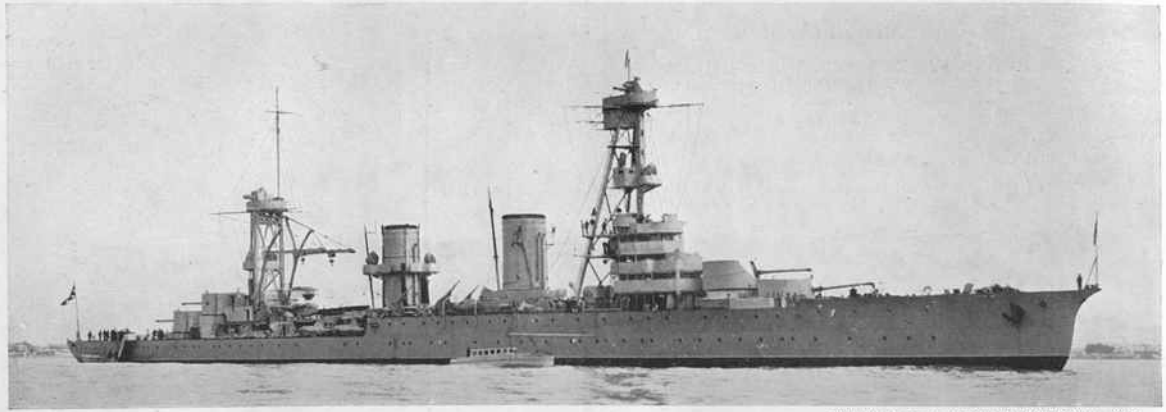
Length, 530 feet. Beam, 50½ feet. Draught, 20½ feet.

Guns:
4—7·1 inch.
8—4 inch AA.
4—37 mm. AA.
4 M.G.

Aircraft:
1, with catapult.

Tubes:
12—21 inch (tripled).

Mines: 100.

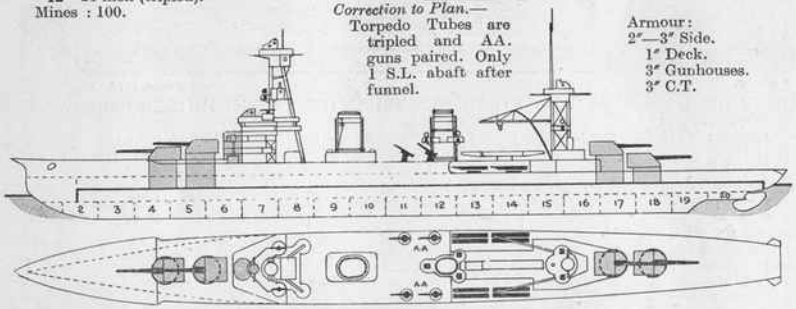


1934 *Photo, favour of Lieut. R. I. T. Falkner, R.N.*

KRASNI KAVKAZ.

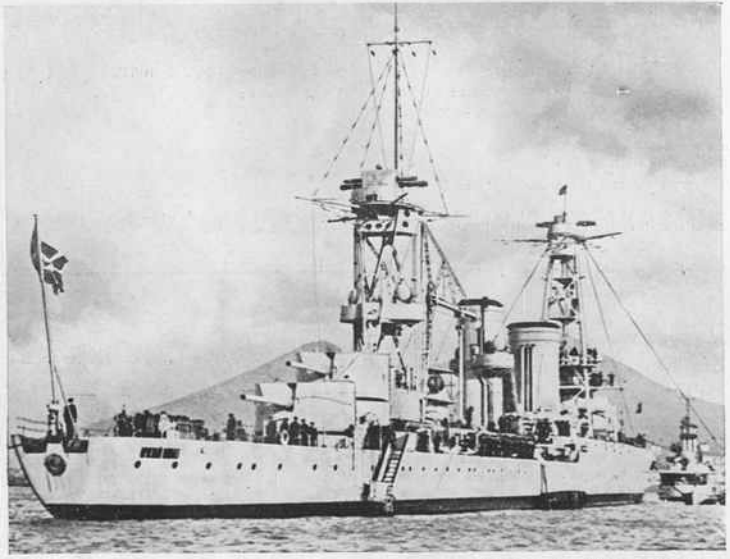
Correction to Plan.—
Torpedo Tubes are tripled and AA. guns paired. Only 1 S.L. abaft after funnel.

Armour:
2″—3″ Side.
1″ Deck.
3″ Gunhouses.
3″ C.T.



Machinery: Parsons Turbines. H.P.: 55,000 = 30 kts. Boilers: 13 Yarrow. Coal: 540 tons. Oil: 690 tons = 3,700 miles at 14 kts.

Note.—Laid down in 1914, the construction of this ship was held up for many years. As completed, *Krasni Kavkaz* mounts an entirely different armament from *Profintern* and *Chersonaya Ukraïna*, to which she was originally to have been a sister. She is said to be fitted for minelaying.



KRASNI KAVKAZ.

1934 *Photo, Herr Torsten Hallonblad*

PROFINTERN (ex-*Sovnarkom*, ex-*Klara Zetkin*, ex-*Svietlana*, June, 1915. Reval).

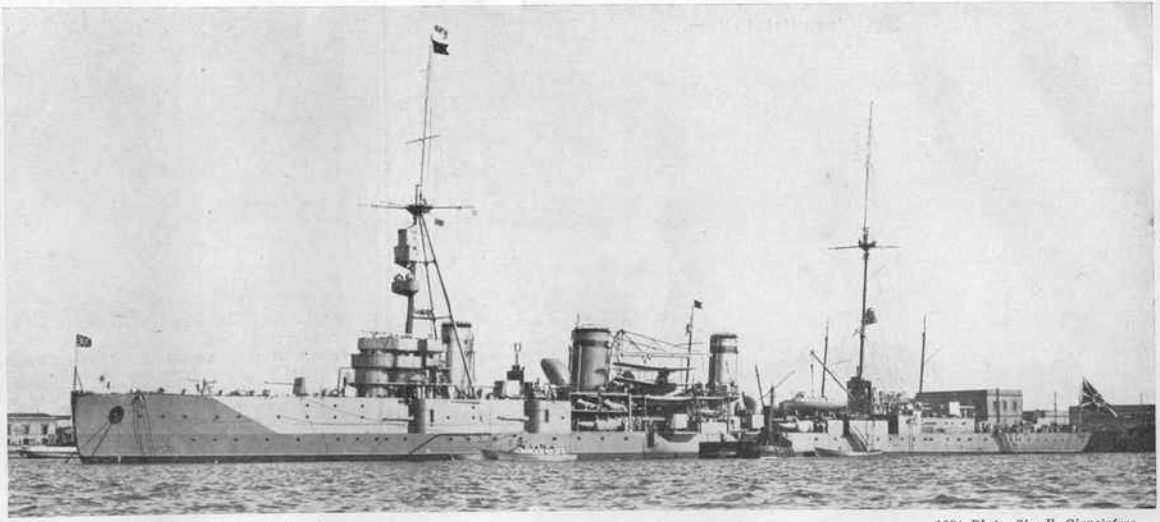
(This ship is reported to have been renamed *Krasni Krim*.)

CHERVONAYA UKRAÏNA (ex-*Ad.Nakhimov*, October, 1915. Nikolaiev).

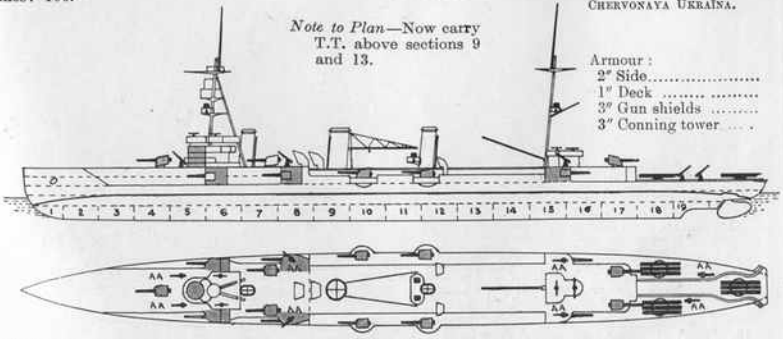
Displacement, 6,600 and 6,934 tons, respectively. Complement, 624. Length, 507¾ feet. Beam, 50½ feet. Draught, 18½ feet.

Guns:
15—5·1 inch, 55 cal.
8—4 in. AA.
4 machine.
Torpedo Tubes: (21 inch)
12 in Triple Mounts.
Mines: 100.

Aircraft:
2, handled by crane.



CHERVONAYA UKRAÏNA. 1934 *Photo, Sig. F. Cianciafara.*

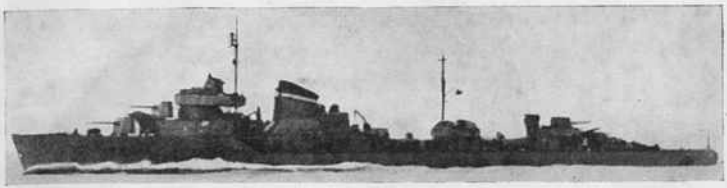


Machinery: Brown Curtis or Parsons turbines. Boilers: 13 Yarrow. H.P. 50,000=29·5 kts. Coal: 540 tons. Oil: 690 tons. Radius of action: 470 miles at full speed, 3700 at 14 kts.

General Notes.—Built under the 1912 Naval Programme and laid down in 1913. Construction was held up for many years, *C. Ukraina* being the first to be completed in December, 1924, followed by *Profintern* in January, 1925. *Profintern* towed to Leningrad for completion 1918. Proceeded to Black Sea, 1930, staying for repairs at Brest and Naples, where it is reported that her condition was very unsatisfactory and that only minor repairs would be undertaken. Have always been described as having 3 inch armour for full length over main and lower decks, but from inspection it appears that there is no special side armour; apparently the hull is built of thicker plating than usually obtains. Armour has therefore been deleted from above plan and exact protection is uncertain. *Profintern* refitted, 1937.

PROFINTERN. *Added* 1935.

36 Stremitelni Class.



STREMITELNI (Baltic). *Added* 1940.

GORDI (Baltic). *Added* 1940.

BESPOSHTADNI (Black Sea). *Added* 1940.

Stremitelni (1936), ***Smetlivi*** (1937), ***Gordi*** (1937), ***Gromki*** (1938), ***Grosni, Grosovoi, Gnievni, Gremiastchi, Grosiastchi, Smyeli, Sviryepi.*** Built at Leningrad. ***Bodri, Bistri, Besposhtadni, Bezupreshni, Smelni, Bravi, Biedovi, Bezpokoini, Buini, Beztrashni, Graveni, Metki, Molodetski, Ryeshitelni, Serdivi, Strogi.*** Some of these built in Black Sea yards. 9 more reported building. Displacement: 1,800 tons *standard*. Dimensions: Not reported. Guns: **4**—5·1 inch, 55 cal., **2**—3 inch 50 cal. AA., 2—37 mm., **4** D.C.T. Tubes: **6**—21 inch (tripled). Fitted for minelaying. Machinery: Geared turbines by Tosi. 2 shafts. S.H.P.: 50,000 = 37 kts. (*Grosiastchi* said to have reached 40·2 kts. on trials.) Boilers of 3-drum type. Oil fuel.

Notes.—These vessels are said to be much better sea boats than *Leningrad* type, having less top weight. They are of Odero-Terni-Orlando design.

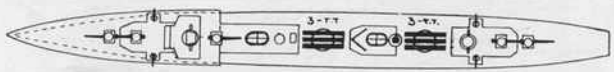
TASHKENT (on trials). 1939, *courtesy Dott. Ing. L. Accorsi.*

Tashkent (Odero-Terni-Orlando, Leghorn, Nov. 21, 1937). Displacement: 2,895 tons. Dimensions: 457¾ × 45 × 11½ feet. Guns: **6**—5·1 inch, 55 cal., **6**—45 mm. AA., **6** M.G. **4** D.C.T. Tubes: **9**—21 inch (tripled). Fitted for mine-laying. Machinery: Geared turbines. 2 shafts. S.H.P.: 95,000 = 39 kts. (Claimed to have made 44·3 kts. on 6 hours trials with 110,000 S.H.P., but this was before guns were mounted). Water-tube boilers of 3-drum type. Oil fuel.

Note.—Design reported to be of an unusually light type, to obtain highest possible speed. Guns were not mounted until ship arrived at Nikolaiev at end of Feb., 1939. Intended for service in Far East.

15 Leningrad Class.

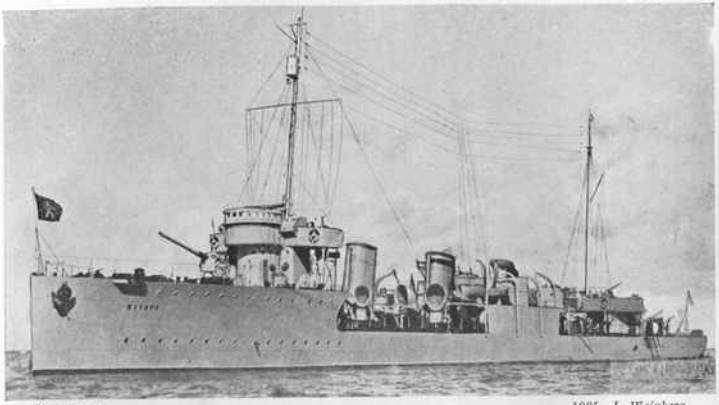
LENINGRAD. 1937, *courtesy H. C. Bywater, Esq*



15 *French* type: ***Leningrad*** (1935), ***Minsk*** (1936), ***Arkhangelsk, Kronstadt, Murmansk, Petrosavodsk.*** All built at Leningrad. ***Moskva*** (1937), ***Kharkov*** (1937), ***Kiev*** (1938), ***Ochakov, Sivash, Perekop, Stalinsk, Tbilissi.*** All built in Black Sea yards. ***Volochevka.*** Built at Vladivostok. *Standard* displacement: 2,900 tons (3,500 *full load*). Dimensions: 459½ × 45 × 14 feet. Guns: **5**—5·1 inch 55 cal., **2**—3 inch 50 cal. AA., 2—37 mm. AA., **4** D.C.T. Tubes: **6**—21 inch (tripled). Fitted for minelaying. Machinery: Geared turbines. S.H.P.: 90,000 = 36 kts. (Trials of *Leningrad*, light, said to have given 39·3 kts., and of *Moskva*, 36·8 kts.). Watertube boilers of 3-drum type. Oil fuel.

Note.—These ships resemble French *contretorpilleurs* of recent design, and their construction is understood to have been supervised by French technical experts. Reported to be poor sea boats, very wet forward. Others are projected. Those so far completed are employed as Leaders.

4 Petrovski Class.

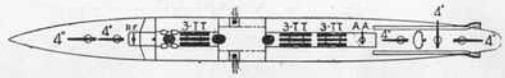


SHAUMYAN. 1935, *J. Weinberg.*

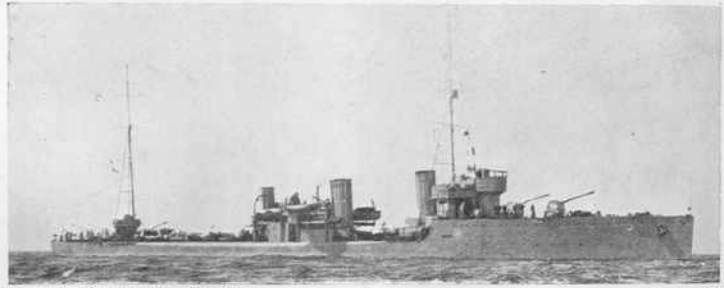
SHAUMYAN. 1935, *J. Weinberg.*

4 boats: ***Felix Dzerzhinski*** (ex-*Kalinkria*, 1918), ***Nezamojnik*** (ex-*Zante*, 1917), ***Petrovski*** (ex-*Korfu*, 1917), ***Shaumyan*** (ex-*Lemkos*, 1917). All built at Nikolaieff. 1,323 tons (*Petrovski*, 1,308 tons). Dimensions: 303½ × 29½ × 9 feet. Armament: 4—3·9 inch, 1—3 inch AA., 1—37 mm. AA., 12—18 inch tubes, in triple mountings. Originally designed to carry 80 mines of pre-war pattern, but will now have 45 of heavier type. Turbine engines. Oil fuel only: 390 tons. S.H.P.: 29,000 = 33 kts. (Actual speed considerably less.) Complement: 161. *Nezamojnik* not completed till 1923, and *Petrovski* and *Shaumyan* till 1925. *Dzerzhinski* sunk in 1918, but salved in 1925 and refitted 1926-28.

2 Karl Marx Class.



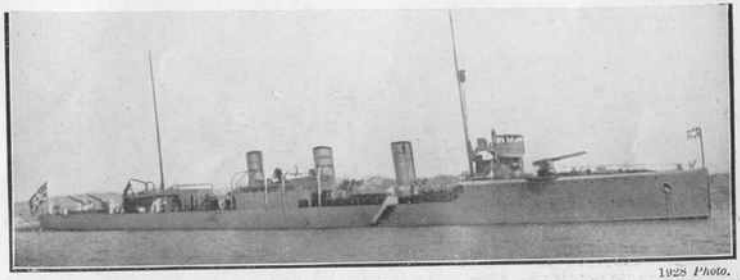
KALININ only.



KARL MARX (Now has deckhouse aft). 1932.

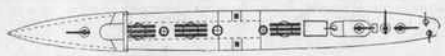
2 *Rzeal Shipbuilding Co.*: ***Karl Marx*** (ex-*Isyaslae*), ***Kalinin*** (ex-*Priamislae* (1914). 1354 tons. Dimensions: 344½ × 31½ × 9½ feet. Guns: 5—3·9 inch, 1—3 inch AA., 1—37 mm. AA., 2 M.G. *Kalinin* only 4—3·9 inch. Torpedo tubes: 6—18 inch in *K. Marx*, 9—18 inch in *Kalinin*. 60 mines. Machinery: Parsons turbines. Designed H.P.: 32,700 = 33 kts. (Trials reported to have given 32 kts., but present figure only 28 kts.). Normand boilers. Oil: 450 tons. Complement: 167.

Notes.—These vessels were built to the designs of Chantiers et Ateliers Augustin Normand, Le Havre, and laid down in 1912. *K. Marx* completed 1923, but *Kalinin* was not completed till 1927. Former vessel was reconstructed, 1935–37, and deckhouse substituted for third group of torpedo tubes shown in plan of *Kalinin*, above.



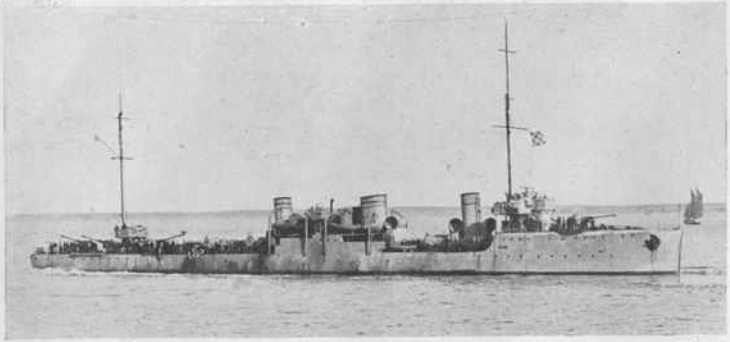
1928 *Photo.*

Frunze (ex-*Bistri*, 1915). (Reconstructed 1939). 1,300 tons. Complement: 156. Dimensions: 321½ × 30½ × 12½ feet. Armament: 4—4 inch, 2—3 inch AA., 1—37 mm. AA., 1 M.G., 9—18 inch tubes, 80 mines. Machinery (New in 1939): Double reduction geared turbines. 2 shafts. S.H.P.: 33,000 = 34 kts. Boilers: 4 Thornycroft. 2 screws. Oil: 350 tons.



CC

9 Uritski Class



ENGELS (Observe funnel tops). 1937.

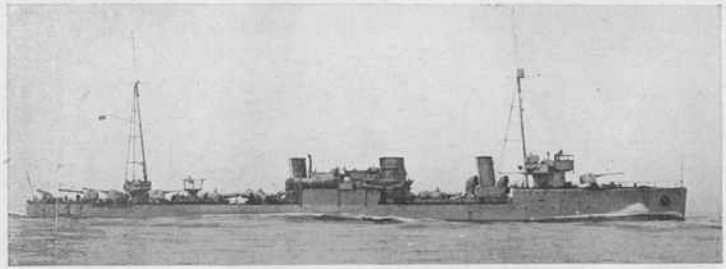
LENIN. 1936.

6 Leningrad Metal Works: ***Uritski*** (ex-*Zabiaka*, 1914); ***Volodarski*** (ex-*Pobieditel*, 1914); ***Artem*** (ex-*Zinovier*, ex-*Azard*), ***Engels*** (ex-*Desna*), ***Stalin*** (ex-*Samson*), ***ex-Rykov*** (ex-*Kap. Kern*). All 1914–15.

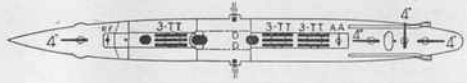
3 Putilov Works, Leningrad: ***Karl Liebknecht*** (ex-*Kap.-Lt. Belli*), ***Voikov*** (ex-*Trotski*, ex-*Leit. Ilyin*), ***Lenin*** (ex-*Kap. 2r. Izylmettiev*). All 1914–15.

Displacement: 1,150 to 1,417 tons. Dimensions: 314¾ to 321¾ × 30¼ × 9¼ feet. Complement: 157. Guns: 4—3·9 inch, 1—3 inch AA., 1 M.G. Torpedo tubes: 9—18 inch (tripled). All carry mines. Machinery: Turbines. S.H.P.: 30,000 = 28 to 30 kts. Thornycroft boilers. Oil fuel: 400 tons. All laid down under 1912 Programme, and mostly completed after War. *Rykov* and *K. Liebknecht* were not commissioned till 1927 and 1928, respectively.

Appearance Notes.—These destroyers vary in appearance according to builders. Those constructed by Leningrad Metal Works mostly have slanting funnel tops. *Stalin* has been reconstructed and differs from rest of class in appearance. *Rykov* reported to have been re-named, 1937, but new name not advised. *Uritski* was reconstructed in 1937.



EX-RYKOV (Observe tripod masts). 1932.

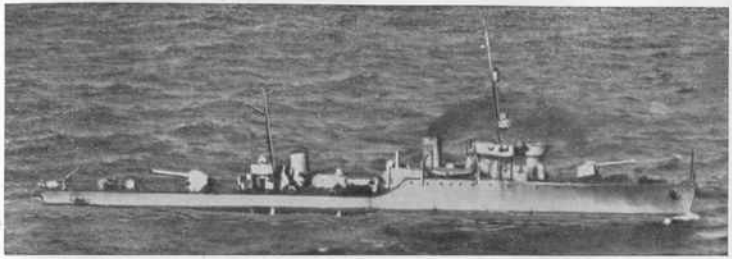


1937.

ex-Yakov Sverdlov (ex-*Novik*). Built 1910–12. Rebuilt and re-armed 1931. Displacement: 1,271 tons. Dimensions: 336 × 31 × 9¼ feet. 3 A.E.G. turbines S.H.P.: 36,500 = 32 kts. 6 Vulcan boilers. Oil: 400 tons. Complement: 112. Guns: 4—3·9 inch, 3—37 mm. AA., 1 M.G. 9—18 inch tubes.

Note.—Recent alterations include enlarged bridge, tripod foremast, extended forecastle, and alteration in position of after-superstructure, and main mast. Employed on cruiser duties. Trials: 1915 = 35·7 kts. Reported to have been re-named, 1937, but new name not advised.

SASOVIETZ, SERP, SIBIRIAK, SOKKI, SOVNARKOM, STAMOR (1937–39.) Displacement: 700 tons. Guns: 2—3·9 inch, some smaller. Tubes: 3—18 inch. Speed: 31·5 kts. Otherwise believed to be modifications of *Shtorm* class below. More ships of this type are believed to be under construction.

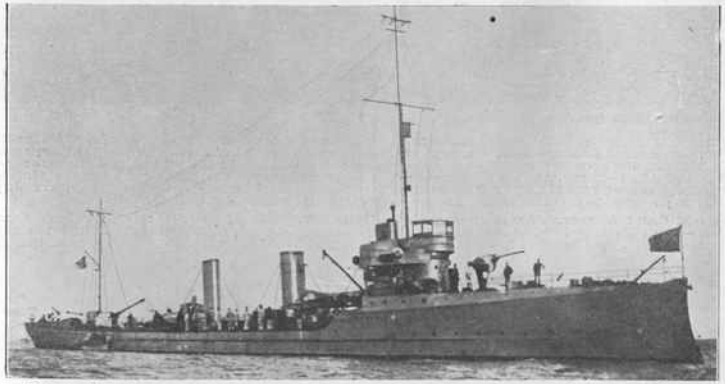


1934 *Photo.*

SHTORM, SHKVAL, SMERTCH, URAGAN, TAIFUN, SIKLON, GROZA, METEL, VIKHR, VIYUGA, GROM, BURIYA, TUCHA, SNIEG, LUKOI, ZARNITZA, MOLNYA. (1932–6). Displacement: 740 tons. Complement 72. Dimensions: 238 (*pp.*) × 24 × 10 feet. Guns: 2—3·9 inch, 4—40 mm. AA., 2 M.G., 2 D.C.T. Tubes: 3—18 inch (tripled). 50 Mines carried. Machinery: Geared turbines. 2 shafts. H.P.: 13,200 = 25 kts.

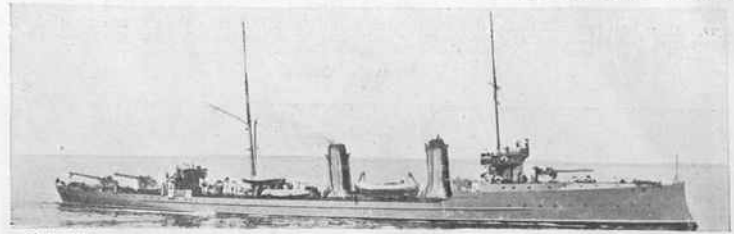
Notes.—Reported to be poorly constructed and to roll heavily, owing to excessive tophamper. Last 5 vessels may differ slightly from the rest. *Shtorm* and *Shkval* stationed in Black Sea, *Vikhr* and 2 more in Far East, others in Baltic. *Purga*, of this type, wrecked in White Sea during autumn of 1938.

3 Markin class.



BABINSKI RABOTCHI. *Photo, Dmitri Novik (added 1929).*

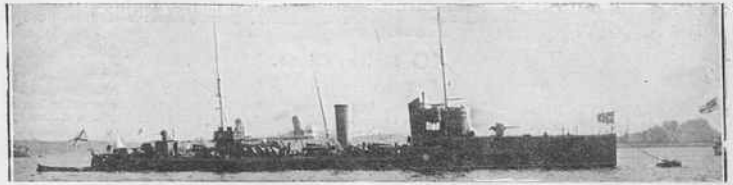
3 "*Markin*" class, named ***Alfater*** (ex-*Turkmenetz-Stavropolski*). ***Markin*** (ex-*Ukraina*) ***Babinski Rabotchi*** (ex-*Voiskovoi*) (all 1904). Built by Lange's Yard, Riga. 580 tons. Dimensions: 240 × 23‡ × 7½ feet. Designed H.P. 6200 = 25 kts. Boilers: 4 Normand. Coal: 50 tons *normal*, 135 tons *full load*. Complement, 88–85. Armament: 3—3·9 inch, 1—1 pdr., 2 M.G., and 2—18 inch tubes. Carry 16 mines. All three are in Caspian.



KONSTRUKTOR. 1932 *Photo.*

1 *Kondratenko* type: ***Konstruktor*** (ex-*Sibirski-Strelok*, Helsinki, 1906). 625 tons. Dimensions: 246 × 27½ × 8½ feet. Guns: 3—3·9 inch, 2—4 pdr. AA. Tubes: 1—18 inch, 50 mines. H.P.: 7,300 = 25 kts. Coal: 215 tons. Complement: 101. (Serving as Leader of Minesweepers, Baltic.)

2 Zhelesniakov class.



2 *Zheleznikov* class, named ***Sladkov*** (ex-*Vsadnik*). (Krupp 1905), ***Zhelesniakov*** (ex-*Amurets*, Riga, 1905). 710 tons. Dimensions: first ship, 233 × 24·2 × 7·5 feet, second, 233 × 23·6 × 7·8 feet. Designed H.P.: 6,500 and 6,200 respectively = 25 kts. Coal: 205 tons. Complement: 105. Guns: 3—3·9 inch, 1—3 pdr., 1—1 pdr. AA. 4 M.G. Tubes: 3—18 inch. Carry 25 mines.

Note.—Present best speeds: 22–24 kts.

Motor Type

Total number uncertain, but is at least 130. Displacement varies from 6 to 35 tons. Majority are of Italian M.A.S. type. Usual armament, 2 torpedoes. Machinery of Italian design. Distributed between Baltic, Black Sea and Far East. The latest type, of which 12 were built under licence at Martl Yard, Leningrad, in 1937, are of 11 tons with a speed of 42 kts. Others have been completed recently in Black Sea yards. Distinctive numbers are painted on C.T.'s of all those observed.

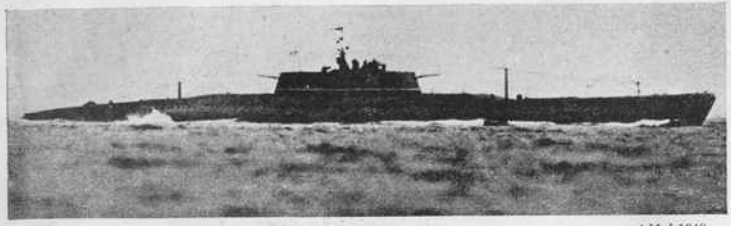
Names reported from the Black Sea are as follows. These are probably motor launches, built in U.S.A., 1915–16.

Beshumni, Pilki, Pritki, Pronzitelni, Protchni, Silni, Zavietni, Zhivuchi, Zorki.

170 + 30 (building) Submarines (Podvodniya Lodki.)

Note. Above total may well be less than the real one, as list below does not pretend to be exhaustive. It is believed that present system of numbering is as follows: From 100 upwards, submarines stationed in Far East; 200, etc., Black Sea; 300 and above, Baltic and White Sea.

7 Pravda Class.



PRAVDA. *Added* 1940.

7 boats: ***Pravda*** (*P* 1), ***Sviezda*** (*P* 2), ***Iskra*** (*P* 3), and at least 4 more. Built 1936. Displacement: 1,200/1,800 tons. Dimensions unknown. Guns: 2—4 inch, 45 cal., 1—37 mm. AA. Torpedo tubes: 8—21 inch. Said to be quite a successful type, capable of rapid diving.

10 Nalim Class.

Photo wanted.

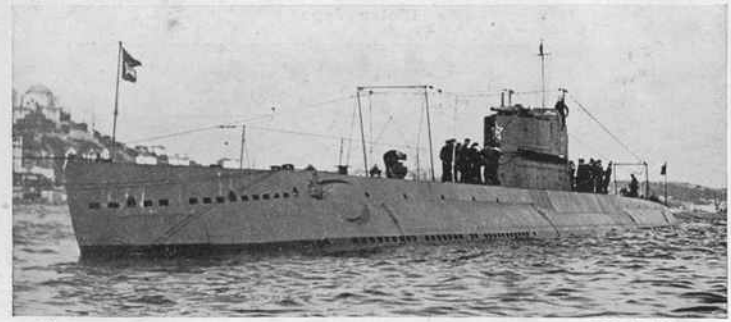
10 boats: ***Nalim*** (*N* 1), (1937), and at least 9 more. Displacement: 1,080/1,320 tons. (May be considerably less.) Guns: 1—4 inch, 45 cal., 1—1 pdr. AA. Tubes: 6—21 inch. Reported to have exceptionally high surface speed (20/9 kts.).

8 Garibaldietz Class.

Photo wanted.

8 *Adriatico design* boats: ***Garibaldietz*** (*B* 4), ***Chartist*** (*B* 5), ***Karbonari*** (*B* 6), and 5 more. Completed 1933–35. Displacement: 1,039/1,335 tons. Guns: 1—4 inch, 45 cal., 1 M.G. Tubes: 6—21 inch. Speed: 14/8·5 kts. In Black Sea.

9 Yakobinetz Class.

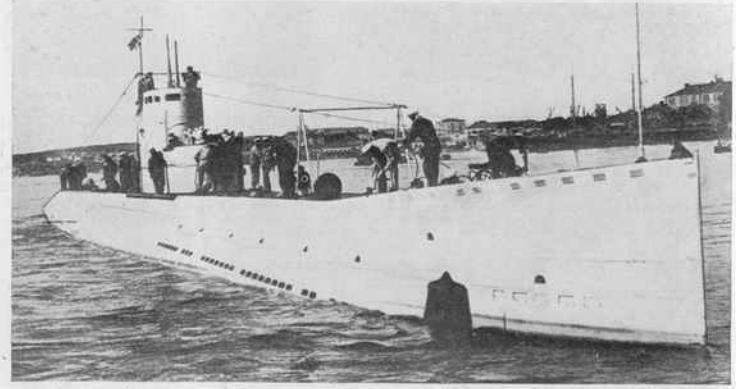


YAKOBINETZ 1935, *J. Weinberg.*

9 boats: ***Yakobinetz*** (No. 11), ***Revolutioner*** (No. 12), ***Spartakovetz*** (No. 13), and 6 others. Completed 1931. Displacement: 959/1,370. tons. Dimensions: 284 × 23½ × 16½ feet. Guns: 1—4 inch AA., 1—37 mm. AA., 2 M.G. Torpedo Tubes: 8—21 inch. H.P. 2,600/1,200 = 15/8 kts. In Black Sea.

23 Dekabrist Class.

1937 *courtesy* "Taschenbuch der Kriegsflotten"



DEKABRIST *type.* 1935.

23 boats: ***Dekabrist*** (*L* 1), ***Narodovoletz*** (*L* 2), ***Krasnogvardietz*** (*L* 3), ***Leninetz, Stalinetz, Mudrovetz, Sverdlovetz, Frunzovetz,*** and at least 15 others. All built at Baltic Yard, Leningrad, 1929–35. Displacement: 896/1,318 tons. Complement: 44. Dimensions: 279 × 23 × 16½ feet. Guns: 1—4 inch AA., 1—37 mm. AA., 2 M.G. Torpedo tubes: 8—21 inch (6 bow, 2 stern). H.P. 2,500/1,200 = 15/8 kts. *Surface* radius: 7,000 at 9 kts. ***B 3*** (believed to be of this class) sank during exercises in Gulf of Finland, July, 1935; reported to have been salved. Another vessel of this type reported lost on trials.

3 special boats: ***Komsomolka, Komsomoletz, Dvigatel,*** (1933). Displacement: 889/1,312 tons. Guns: 1—4 inch, 45 cal., 1—1 pdr. AA., 2 M.G. Tubes: 8—21 inch (6 bow, 2 stern). Other particulars believed to be similar to *Dekabrist*. First two built by subscription from Communist Youth movement. *Komsomolka* used for training.

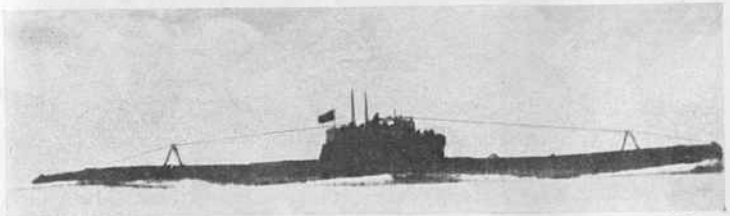
30 Lin Class.

Photo wanted. Appearance as silhouette.

30 boats: ***Lin*** (305), ***Losos, Sterliad, Forel, Delfin*** (309), ***Kassatka*** (311), ***Kumsa, Piksha, Semga, Treska, Bieluga, Peskar,*** and 18 more (1935–38). Displacement: about 500 tons. Guns: 1—1 pdr. AA. Tubes: 4—21 inch. Speed: 19/9 kts. (Many more of this class under construction.) Reported to be designed for coast defence purposes.

16 Chuka Class.

Added 1940.



CHUKA type. 1937.

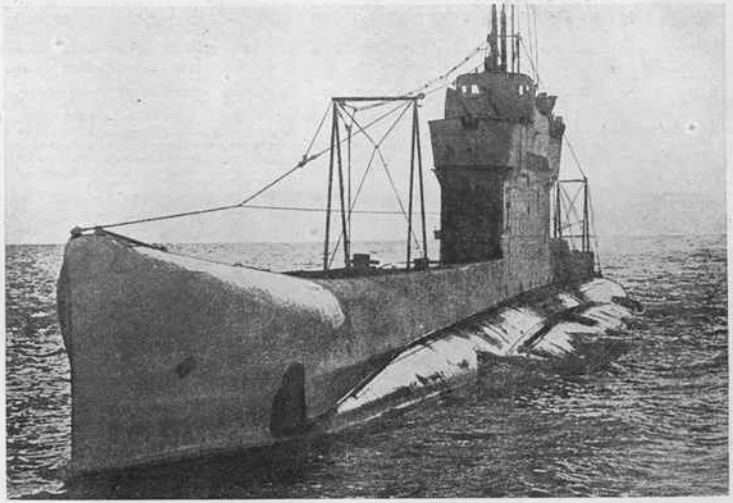
16 (or more) boats: ***Chuka*** (301), ***Okun*** (302), ***Ersh*** (303), ***Makrel*** (304), ***Sig*** (313), and 11 others. Built 1935–37. Displacement: 650/748 tons. Guns: 2—1 pdr. AA. Tubes: 4—21 inch. Reported to be minelayers. Are numbered from 301 to 304 and 313 to 329 (possibly higher), the latter series being of a slightly improved design.

50 "Malodki" Type.

M 72. *Added* 1940.

About 50 boats: Of a small design. Built 1928–30. Displacement: 200 tons *surface*. Those in Baltic numbered *M* 70—103. Armed with 1 M.G. and 2—18 inch TT. Speed: 13/8 kts. "Malodki" is an abbreviation of *Maliya Lodki*, meaning small submarines. Are built on a mass production basis, notably at Gorki, and sent to three assembly ports in sections. Can be easily transported by rail, but have a very limited radius of action. *M* 91, of this type, lost in Gulf of Finland, Nov., 1937.

The following is a list of names that have been reported without type being ascertained: ***Blücher, Budenni, Orlov, Sviezdochka, Bezbojnik, Bezvirnik, Gamarnik, Profilski Ukraina, Krasni Spania.*** Some of these are reported as of considerable size, others as of smaller design. Doubtless all belong to one or other of the various types already enumerated but there are a good many more under construction, design of which has not been ascertained.



1 ex-British ***"L.55."*** (Fairfield, 1918). Displacement: 870/1,139 tons Dimensions: 220½ (*p.p.*), 235 (*o.a.*) × 23¼ × 13¦ feet. Guns: 2—3 inch, 1 M.G. Tubes: 6—21 inch, all in bows. Machinery: 2 sets 12-cylinder solid injection, Vickers type Diesel engines. Oil: 78 tons. B.H.P.: 2,400/1,600 = 17·5/10·5 kts. Lost in the Baltic, 1919, salved 1928, repaired, and put into service October 9, 1931. Sunk in same month by collision with a merchant vessel, but now again in service though only used for training purposes. Present speeds not above 14/9 kts.

3 Bolshevik Class.

KRASNOARMEYETZ No. (4). (Since reconstructed.) 1930, *Comm. R. Steen Steensen.*

3 *Bubnov* type: ***Bolshevik*** (ex-*Ryss*), ***Krasnoflotetz*** (ex-*Yaguar*), ***Krasnoarmeyetz*** (ex-*Leopard*). All built by Nobel & Lessner, Reval, 1915–16. Displacement: 650/784 tons. Dimensions: 223 × 14¼ × 12¼ feet. Guns: 1—3 inch, 1 M.G. Tubes: 4—18 inch. Dropping gears: 8. H.P.: 1,000/840 = 10/8 kts.

Note.—Rabotchi (No. 9) was sunk in the Baltic May 25, 1931. Since raised and scrapped. *Tovarich* (No. 3) sunk by collision with *Marat* in August, 1935. *Komissar* and *Kommunar* paid off for scrapping, 1938. *Krasnoflotetz* (No. 5) and *Krasnoarmeyetz* (No. 4) both reconstructed during 1937 (vide silhouette). All this class used only for training.

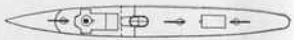
4 Metallist Class.

1930 *Photo.*

(All boats now carry identification numbers, as above).

4 *Electric Boat Co.* design: ***Politrabotnik*** (ex-*AG* 26), 1916–1924; ***Metallist*** (ex-*AG* 21), 1916–1918; ***Kommunist*** (ex-*AG* 24), 1916–1922; ***Marxist*** (ex-*Kamenev*, ex-*AG* 25), 1916–1922. Displacement: 375—467 tons. H.P.: 480 = 12 kts. *on surface*, 320 = 8 kts. *submerged*. Guns: 1—6 pdr., 4—18 inch tubes. Dimensions: 150¼ × 15¾ × 15¼ feet. Used for training in Black Sea. Dates given are those of laying down and completion.

Patrol Vessels



KIROV. *Added* 1935.

2 *Ansaldo* type: **DZERZHINSKI** (ex-*P.S.* 8), (Aug. 19, 1934), **KIROV** (ex-*P.S.* 26), (Sept. 18, 1934). Built by Ansaldo. *Standard* displacement: 810 tons. Complement: 120. Dimensions: 249½ (*pp.*), 262¼ (*o.a.*) × 27¼ × 16¾ feet. Guns: 3—4 inch, 4—40 mm. AA. Fitted for mine-laying. Machinery: 3 Fiat and Tosi Diesels respectively. 3 shafts. H.P.: 4,800 = 20 kts. (Trials: H.P.: 5,400 = 21 kts.) Fuel: 44 tons. (In Far East.)

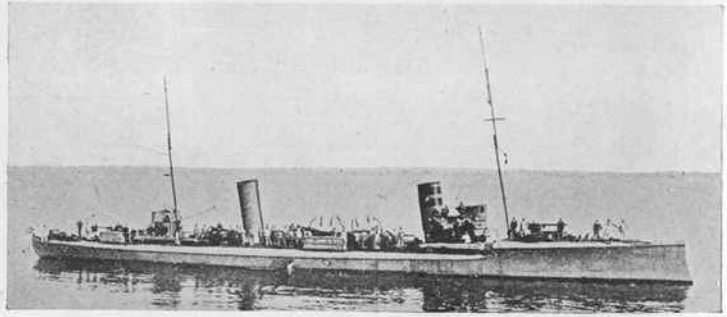


Photo issued 1933.

5 *Schichau* type (Old T.B. with tubes removed): ***Martynov*** (ex-*Vnushitelni*), ***Artemiev*** (ex-*Vinoslivi*), ***Roshal*** (ex-*Ing. Mech. Dmitriev*), ***Shemchushni*** (ex-*Ing. Mech. Sverlev*), ***Ossoaviakhim*** (ex-*Vnimatelni*). All built by Schichau, 1905. Displacement: 375 tons. Dimensions: 210 × 24 × 8½ feet. Guns: 2—3 inch, 4 M.G. May also carry mines. H.P.: 6,200 = 28 kts. (15–20 kts. present speed). Coal: 125 tons. Complement: 69.

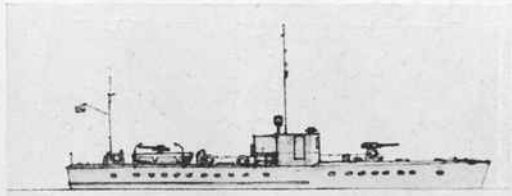
1 *Normand* type: ***Krepki*** (La Seyne, 1905). Displacement: 324 tons. Dimensions: 185 × 21 × 7 feet. Guns: 1—3 inch, 5—3 pdr., 2 M.G. H.P.: 5,500 = 26 kts. (now much less). Coal: 100 tons. Used as a patrol vessel on Lake Ladoga.

MATROS. 1939, *Associated Press.*

PROVODNIK 1939, *Associated Press.*

CHEKA, FUGAS, KAPSIUL, KORSHUN, MATROS, MINREP, PARAVAN, PODSEKATEL, PROVODNIK, STRELA, VELTA, VZRYF, ZAPAL (1935–36). Displacement: 500 tons. Dimensions: not reported. Guns: 1—4 inch, 4—37 mm. AA. Fitted for minelaying and minesweeping. Machinery: Diesel. 2 shafts. Speed: 16 kts.

Note.—Six of these vessels were previously known as *P.S.* 1 to 6. Initials *P.S.* stand for *Pogranitchni Storosheroi*, meaning Frontier Patrol. Altogether there are believed to be about 20 of this type.



Added 1938.

Nos. 201–212 (1937–38). Motor vessels, similar to Finnish V.M.V. type. Displacement: 30 tons. Guns: 2—47 mm. Speed: 25 kts. or more.

CHORIOK, KUNITZA, LASKA, VIDRA (1936–37). Displacement: 180 tons. Guns: 2—3 inch. Speed: 12 kts. (Stationed in Caspian).

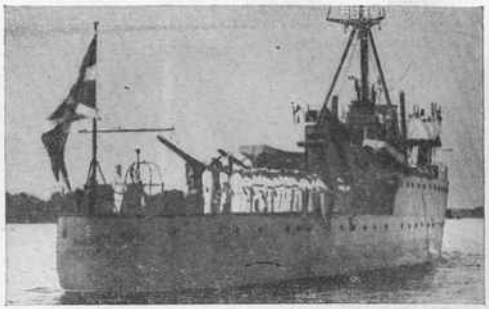
River Gunboats.

Two river gunboats of 600 tons are reported to be under construction.

Added 1940.

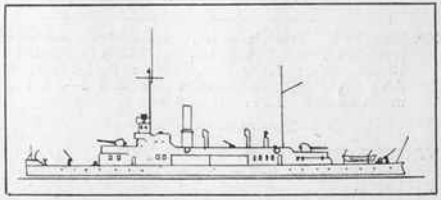
LENIN (ex *Shtorm*), **SUN-YAT-SEN** (ex-*Shkval*), **KRASNI-VOSTOK** (ex-*Viyuga*), **SVERDLOV** (ex-*Uragan*), **CHICHERIN** (ex-*Vikhr*) (1910). 950 tons. Complement: 104. Dimensions: 233 × 42 × 4½ feet. Guns: 2—6 inch, 2—4·7 inch, 6 M.G. Armour: 4½″ turrets. Machinery: Nobel-Lessner Diesels. H.P.: 1,000 = 11 kts. (Amur Flotilla.)

Note.—*Sverdlov* has doubtless been renamed again.



KRASNI-AZARBAIJAN. 1931 *Photo.*

KRASNI-AZARBAIJAN (ex-*Trotsky*, ex-*Ardagan*). **LENIN** (ex-*Kars*). (Both 1909). 630 tons. Guns: 2—4·7 inch, 2—4 inch, 4 M.G. Diesel: 1,000 H.P. = 11 kts. Complement, 126. (Both in Caspian Sea.)



KRASNOYE ZNAMIYA (ex-*Sibiriak*). **BIEDNOTA** (ex-*Vogul*) **PROLETARI** (ex-*Buriat*), **RABOTCHI** (ex-*Kalmuk*), (1907) 190 tons. Dimensions: 164 × 27 × 2 feet. Guns: 2—4·7 inch, 2 M.G. H.P. 500 = 11 kts. Fuel: 145 tons. (Amur Flotilla.)

Surveying Vessels.

OKEAN, OKHOTSK (1938). 1,500 tons. 15 kts.
MURMAN (1937). 1,400 tons. 15 kts.

(*Appearance as Silhouette.*)

ASTRONOM (1918). Dimensions: 143 × 21 × 12 feet. Designed H.P.: 220 = 9 kts. Complement: 20.

Minelayers.

Note.—Many Torpedo Craft are equipped as minelayers, as detailed on an earlier page.

2 Minelayers of 700 tons and 1 of 1,200 tons are building at Nikolaiev.

Added 1940

MARTY (ex-*Shtandart*, 1895). Displacement: 4,600 tons. Complement: . Dimensions: 370 (*w.l.*) × 52½ × 20 feet (*mean*). Guns: 4—5·1 inch, 55 cal., 4—37 mm. AA. Mines: 300. Armour: 2" Deck. Machinery: Geared turbines. 2 shafts. Speed: 25 kts. Oil fuel.

Note.—This ship is the former Imperial yacht, laid down at Copenhagen in 1893, and converted into a minelayer at Leningrad in 1935-37.

Photo wanted.
For appearance, see silhouette.

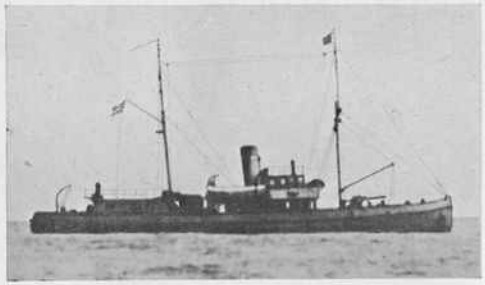
KRASNOYE ABKHASIA, KRASNI AJARISTAN, KRASNAYA GRUSIA, KRASNI KRIM (1916). Displacement: 1,100 tons. Guns: 2—5·1 inch, 2—3 inch AA., 2 M.G. (Some reported to mount 3—5·1 inch.) 248 mines carried. H.P.: 640 = 9 kts.

Appearance as silhouette.

YAUSSA, BERESINA, KUBAN (1916–17). 1165 tons. Guns: 2—4 inch. 90 mines. Paddle propulsion. H.P.: 500 = 10 kts.

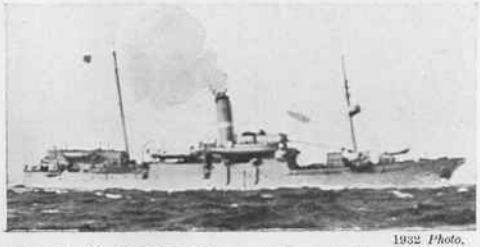
DVADSATPYATAVO OKTIABRYA (ex-*Narova*, ex-*General Admiral*, 1873). Displacement: 4,250 tons. Dimensions: 284½ × 48 × 22 feet. Guns: 4—3 inch, 4 M.G. 600 mines. H.P.: 4,500 = 9 kts. (Minelaying Training Ship.)

Minelayers.—*continued.*



1932 *photo.*

SPARTAK (ex-*Zarnitza*). (Sandvikens, 1913). Displacement: 250 tons. Dimensions: 132¾ × 21¼ × 11 feet. Guns:—3 inch, 2 M.G. H.P.: 740 = 12 kts.

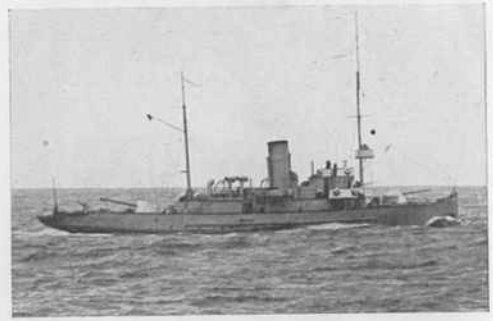


1932 *Photo.*

DEVIATOË YANVARYA (ex-*Volga*, 1905). 1711 tons. Dimensions: 229 × 45 × 13 feet. Complement, 266. Armament: 4—3 inch. Carries 236 mines H.P. 1600 = 13 kts. Babcock boilers. Coal: 160 tons. Present best speed, 10 kts.

PERVOË MAYA (ex-*Dunai*, 1891). 1620 tons. Complement, 234. Dimensions: 203½ × 32¾ × 14¾ feet. Guns: 3—3 inch, 2 M.G. H.P.: 1,500 = 13 kts. Coal: 130 tons. Carries 250 mines. Present efficiency questionable.

Minelayers.—*continued.*

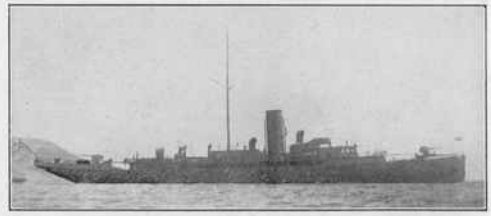


PIONER. 1932 *Photo.*

PIONER (ex-*Korchun*). **KOPCHIK** (1915). 400 tons. Dimensions: 154 × 25 × 10 feet. Guns: 2—4 inch, 1—1 pdr. AA. 70 mines. H.P.: 1,150 = 14 kts.

MINER (ex-*Yastreb*, ex-*Bore*). (1913). 350 tons. Dimensions: 164 × 23 × 9½ feet. Guns: 2—3 inch, 2 M.G. H.P.: 1,000 = 12 kts. Otherwise as *Pioner* type.

Fishery Protection Vessels.

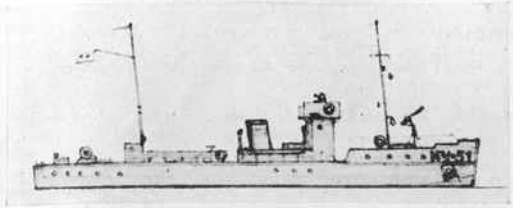


1924 *Photo, Abrahams, Devonport.*

VOROVSKY (ex-*Yaroslavna*, ex-yacht *Lysistrata*, built by Denny, Dumbarton, 1900). 2089 tons (yacht measurement), 1900 tons (registered). Dimensions: 285 (*p.p.*), 319 (*o.a.*) × 40 × 18 feet. Engines: Triple expansion. 2 screws. H.P. 3500 = 18 kts. Guns: 2–4·7 inch., 2—3 pdr., 2 M.G. Complement: 127. (In Far East.)

BAKAN (1896). 885 tons. Dimensions: 180 × 25 × 11 feet. Guns: 2—3 inch, 4 M.G. I.H.P.: 3,800 = 11 kts.

Minesweepers.



M.U. 40—54. (1936-37). 180 tons. 1 M.G. Diesel-driven. Speed: 12 kts. Are attached to Mining School as Tenders.

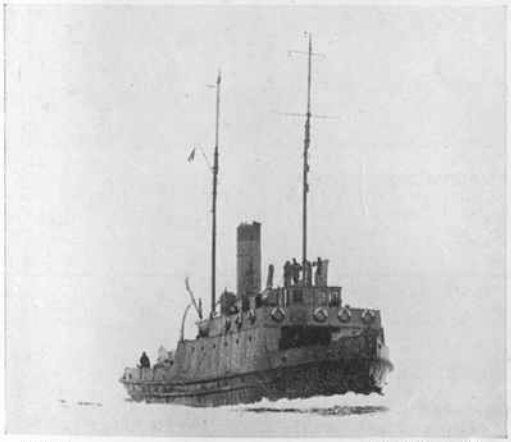
N. 1—6 (1934-35). 200 tons. Guns: 1—3 pdr., 1 M.G. Diesel engines. Speed: 16 kts.

JALITA (1926). 359 tons.
DOROTEA (1924). 443 tons. } In Black Sea.
Each armed with 2—3 inch guns.

NIEVOD, YAKOR (Norway, 1916). Ex-whalers of 400 tons. Guns: 2—3 inch, 1—37 mm. AA. Speed: 11 kts.

IJORA (ex-*Plamya*), **PATRON** (Middlesbrough, 1913-14). 500 tons. Dimensions: 146 × 24½ × 10 feet. Guns: 2—3 inch. H.P.: 650 = 11 kts.

Note.—It is possible that it is the *Patron* that has been renamed *Ijora*.



MIKULA. 1931, (*added* 1936).

MIKULA (1914). Ex-tug of 300 tons. Guns: 1—3 inch, 2 M.G. H.P.: 550 = 10 kts.

Minesweepers —*continued.*

1932 *Photo.*

KLIUZ, UDARNIK (1916). Displacement: 268 tons. Complement: 35. Dimensions: 147¾ (*o.a.*) × 20½ × 6½ feet. Guns: 1—3 inch, 2 M.G. Machinery: Triple expansion. I.H.P.: 450 = 12 kts.

KRAMBOL, ZMEYA (1916). Displacement: 185 tons. Guns: 1—3 inch. Speed: 11 kts.

DOZORNI, RAZVYEDCHIK (1904). 100 tons. Guns: 1—37 mm., 1 M.G. Speed: 15 kts.

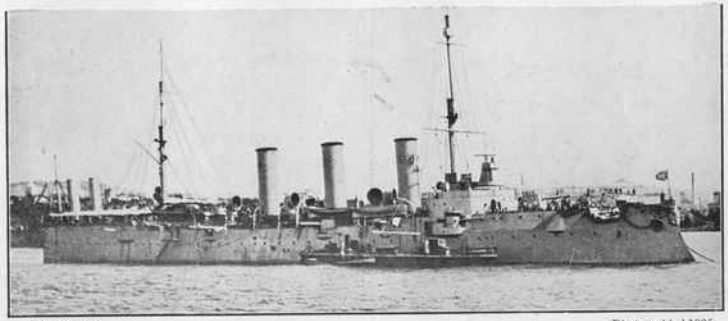
Training Ships.

Added 1938.

SVIR (ex-Rotterdam Lloyd liner *Patria*), (K. M. de Schelde, Flushing, 1919). 9,686 tons *gross*. Dimensions: 480½ × 57¼ × 29 feet. Guns: 4—37 mm. Machinery: Single reduction geared turbines. Speed: 15 kts. Seamen's Training Ship.

AVRORA (ex-*S.S.S.R.*, ex-*Avrora*), (May 24, 1900). Ex-Cruiser. Displacement: 5,622 tons. Dimensions: 406 (*pp.*), 416 (*o.a.*) × 55 × 21 feet. Guns: 10—5·1 inch, 6—3 inch, 2—47 mm. 4 M.G. Fitted for minelaying. Machinery: Triple expansion. I.H.P.: 12,000 = 17 kts. Boilers: 24 Belleville. Seamen's Training Ship, stationed at Kronstadt.

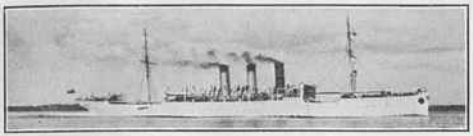
Seagoing Training Ship (ex-Cruiser)



KOMINTERN *Photo added* 1925.

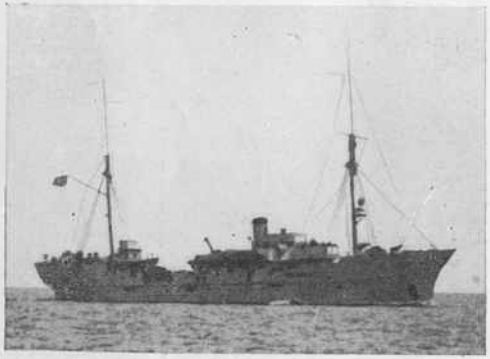
KOMINTERN (ex-*Pamiat Merkuria*, ex-*Kagul*, June 2, 1903). Displacement: 6,338 tons. Dimensions: 436 × 54 × 20½ feet. Complement: 573. Guns: 10—5·1 inch, 8—3 inch AA., 2 M.G. Torpedo tubes: 2—18 inch (*submerged*). Armour: 1″—3″ deck, turrets and casemates. Machinery: Triple expansion. 2 screws. Boilers: 16 Normand. Designed H.P.: 19,500 = 23 kts. Coal: *normal* 700 tons, *maximum*, 1,100 tons. Refitted and rearmed. Present best speed under 20 kts.

Training Ships—*continued.*



(Since reconstructed.)

KOMSOMOLETZ (ex-*Okean*, Howaldt, 1902). 11,900 tons. Guns: 4—3 pdr. H.P. 11,000 = 18 kts. Coal: 1600 tons. Boilers: 6 Belleville, 6 Niclausse, 3 Yarrow, 2 Thornycroft. Complement: 700. Artificers' Training Ship.

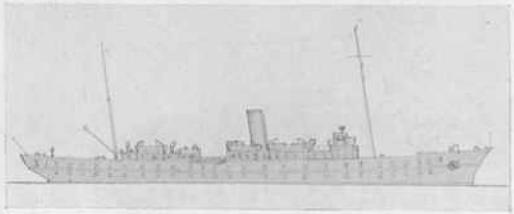


TREVOLEV. 1931 *Photo*

TREVOLEV (ex-*Voin*, 1893, rebuilt 1930). 1289 tons. Guns: 4—3 inch. Speed: 9 kts. Submarine Training headquarters.

LENINGRADSKI SOVIET (ex-*Vierny*, 1895, rebuilt 1926). Similar to *Trevolev* in main features. Attached to Navigation School.

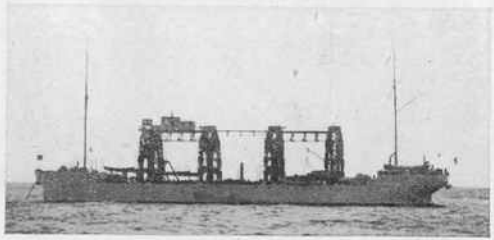
Training Ships—*continued.*



Added 1938.

POLARNAYA SVIEZDA (1890). Displacement: 3,640 tons. Dimensions: 315½ × 46 × 17½ feet. Guns: 3—37 mm. Machinery: Triple expansion. I.H.P.: 5,000 = 15 kts. Reboilered 1936. May burn oil fuel now. Used as Training Ship for artificers and stokers. (Ex-Imperial Yacht, rebuilt 1936–37.)

Depôt Ships.



1931 *Photo.*

KOMMUNA (ex-*Volkhov*, Putilov, 1913). 2400 tons. Dimensions: 315 × 69 × 11¾ feet. Diesel engines. H.P. 1200 = 10 kts. Radius 3600 miles. Can raise 1000 tons.

Note.—Carries all essential stores for submarines (oil fuel, reserve accumulators, &c.), and has compressed air, distilling and charging plant, workshops, &c.

Depôt Ships—*continued.*

SMOLNY (ex-*Tosno*) (Hull, 1907). 3200 tons. Dimensions: 318 × 41 × 18 feet. H.P. 1,200 = 13 kts. (only good for 10 kts. now). Guns: 4—3 pdr. Coal: 390 tons. Depôt Ship for Submarines.

KRASNI KUBANETZ (ex-*Kubanetz*, 1887). 1295 tons. Sister to *Znamya Sozialisma*, described under Salvage Vessel, below.

KRASNI KOMANDIR (ex-*General Brusilov*).

Note.—There is also a Depot Ship for M.T.B., name unknown. She is a single-funnelled converted cargo vessel of about 6,000 tons *gross*.

Salvage Vessel (ex-Gunboat).

Photo added, 1922.

ZNAMYA SOZIALISMA (ex-*Teretz*, 1887). 1295 tons. Compl. 135. Guns: 3—5·1 inch, 2—3 inch. H.P. 1,500 = 11 kts. Coal: 220–237 tons.

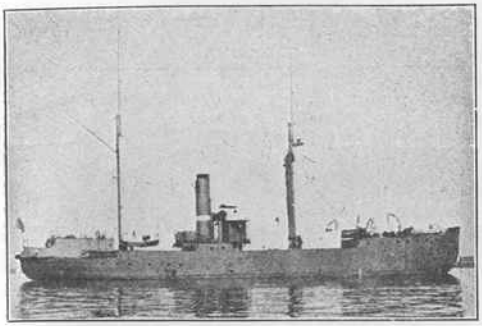
Oilers.

ZHELESNOROSHNIK. 2,000 tons. 10 kts.

METALLIST (ex-*Tamara*), (1898). 1,530 tons. 10 kts. (This may have been the ship sunk by *Orzel* in Sept., 1939.)

GORNYAK (ex-*Tatiana*), (1898). 1,575 tons.

Repair Ships.



(Now has derrick on forecastle).

KRASNI GORN (ex-*Kama*, 1911). 1982 tons. Dimensions: 237¾ × 36 × 12 feet. I.H.P. 1250 = 10 kts. Coal: 170 tons.

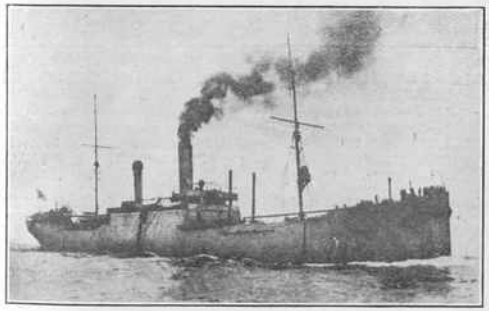


Photo added 1929.

SERP-I-MOLOT (ex-*Angara*), (1900). 5,920 tons. Dimensions: 352 × 46 × 24 feet. I.H.P.: 2,000 = 12 kts. Coal: 1,057 tons.

Icebreakers.

Note.—Most of these icebreakers are immensely strong in framing and scantlings, with exceptionally thick plating, and decks strengthened to permit of guns being mounted in war time.

Building.

SERGEI KIROV, VALERIAN KUBYSHEV, KASAK KHABAROV (1938–39). Built at Leningrad. Displacement: 12,000 tons. Dimensions: 357½ × 69½ × 23½ feet. Machinery: Diesel-electric. B.H.P.: 12,000. 3 shafts (2 stern, 1 bow). Radius: 12,000 miles. 2 aircraft carried.

L. KAGANOVICH 1939, *Midshipman T. B. Healey, R.N.R.*

LAZAR KAGANOVICH (April 30, 1937), **OTTO SCHMIDT** (1940), **YOSIF STALIN** (Aug. 14, 1937), **VIATCHESLAV MOLOTOV** (March 8, 1939). First pair built at Nikolaiev, second pair at Baltic Works, Leningrad. Displacement: 11,000 tons. Dimensions: 351 × 75½ × 22 feet. Machinery: 3 sets triple expansion, with Diesel-electric propulsion for cruising speeds. 3 shafts (2 stern, 1 bow). H.P.: 10,050 = 15·5 kts. 9 boilers. Coal: 4,000 tons. 3 aircraft, 1 catapult included in design, though not seen in above photo. *L. Kaganovich* is in Far East.

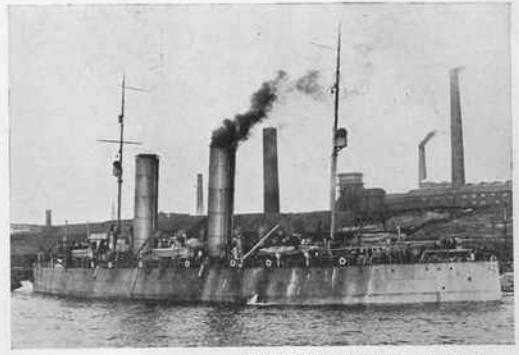
Photo wanted.

FRIEDRICH ENGELS (ex-*Max Holtz*), **JEAN JAURES** (ex-*Bela Kuhn*). Both built at Leningrad. Displacement: 4,735 tons. Dimensions: 347½ × 48½ × 20 feet. Machinery: M.A.N. Diesel. B.H.P.: 1,800.

Photo wanted.

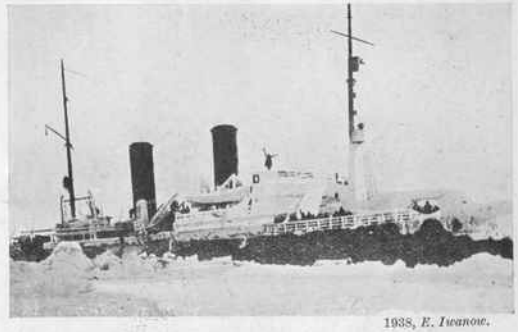
SEVMORPUTI (Marti Yard, Leningrad, May 20, 1937). 6,000 tons *gross*. Speed: 11·5 kts.

Icebreakers—*continued.*



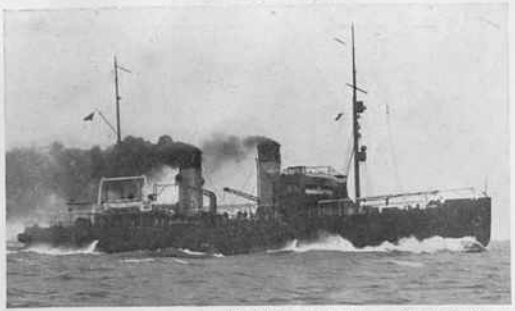
Added 1938, courtesy Messrs. Armstrongs.

KRASSIN (ex-*Sviatogor*). (Armstrong, 1917). Displacement: 8,700 tons. 5,168 tons *gross*. Dimensions: 297 (*w.l.*), 323¼ (*o.a.*) × 71 × 26 feet. Machinery: 3 sets triple expansion. I.H.P.: 10,000 = 15 kts. 10 single-ended boilers. Coal: 3,200 tons. Complement: 190. (Stationed in Arctic).



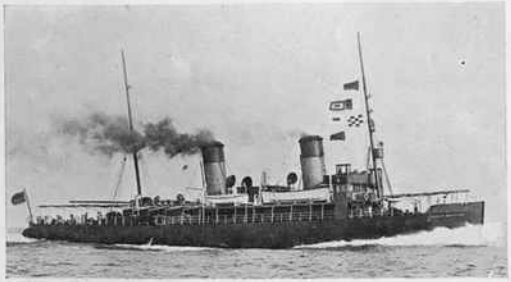
1938, *E. Iwanow.*

LENIN (ex-*Aleksandr Nevski*). (Armstrong, 1917). Displacement: 5,600 tons. 3,375 tons *gross*. Complement: 122. Dimensions: 273 (*w.l.*), 281 (*o.a.*) × 64 × 19 feet. Machinery: 3 sets triple expansion. 3 shafts. H.P.: 8,000 = 19 kts. 8 boilers. (Arctic).



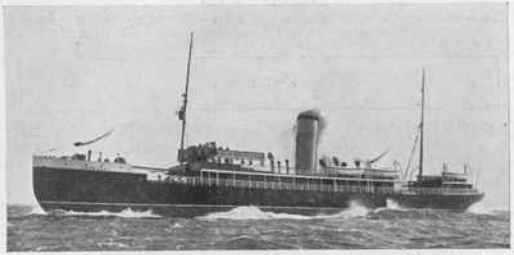
Added 1938, courtesy Messrs. Swan, Hunter.

STEFAN MAKAROFF (ex-*Kniaz Pojarski*), (Swan, Hunter, 1916). *Standard* displacement: 3,150 tons. 2,432 tons *gross*. Dimensions: 236 (*pp.*), 248 (*o.a.*) × 57 × 22 feet. Machinery: 3 sets triple expansion. 3 shafts. I.H.P.: 6,400 = 14·5 kts. 6 boilers. Coal: 700 tons. (Black Sea).



Added 1938, courtesy Messrs. Swan, Hunter.

DOBRINA NIKITICH (Swan, Hunter, 1916). *Standard* displacement: 2,460 tons. 1,664 tons *gross*. Dimensions: 200 (*pp.*), 211 (*o.a.*) × 50½ × 20 feet. Machinery: Triple expansion. 2 shafts. I.H.P.: 4,000 = 14 kts. 6 boilers. Coal: 370 tons. (Far East).



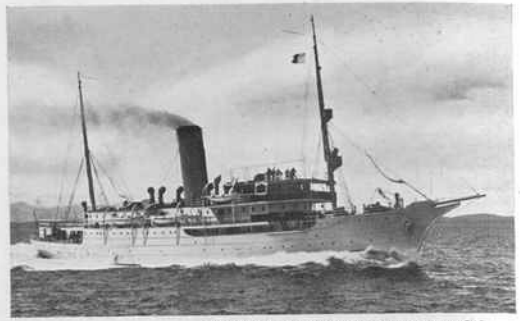
Added 1938, courtesy Messrs. Swan, Hunter.

SADKO (ex-*Lintrose*), (Swan, Hunter, 1913). Displacement: 2,000 tons. 1,166 tons *gross*. Dimensions: 255 × 37½ × 21 feet. Machinery: Triple expansion. 1 shaft. I.H.P.: 3,500 = 14 kts. 4 boilers. (Arctic).

Note.—This ship was sunk during the War off the Arctic coast of Russia, where she lay for many years until raised and refitted.

(*Photo wanted*).

MALYGIN (ex-*Solovei Budimirovitch*, ex-*Bruce*). (Napier & Miller, 1912). Displacement: 2,200 tons, 1,553 tons *gross*. Dimensions: 250½ × 36 × 17½ feet. Machinery: Triple expansion. 1 shaft. I.H.P.: 3,000 = 15 kts. (Arctic).



Added 1938, courtesy Vickers-Armstrongs, Ltd.

FEODOR LITKE (ex-*Kanada*, ex-*Earl Grey*). (Vickers, 1909). Displacement: 3,400 tons. 2,357 tons *gross*. Dimensions: 250 (*pp.*), 265 (*o.a.*) × 47½ × 17¾ feet. Machinery: Triple expansion. 2 shafts. I.H.P.: 6,000 = 17 kts. (Baltic).

(*Photo wanted*).

ALEKSANDR SIBIRIAKOFF (ex-*Bellaventure*), **GEORGEI SEDOFF** (ex-*Beothic*), **VLADIMIR RUSSANOFF** (ex-*Bonaventure*). All built 1900, first two by D. & W. Henderson & Co., third by Napier & Miller. Displacement: 1,300 tons, 1,132 tons *gross*. Dimensions: 240½ × 36 × 16½ feet. Machinery: Triple expansion. 1 shaft. I.H.P.: 2,000 = 13·5 kts. (Arctic).

Note.—In 1939 *G. Sedoff* achieved a record latitude in her ice-bound drift northward.

Icebreakers—*continued.*

Photograph in "Fighting Ships," 1921, p. 607.

ERMAK (Armstrong, 1898). Displacement: 7,875 tons. 4,817 tons *gross*. Dimensions: 305 × 71 × 25 feet. Machinery: Triple expansion. 3 shafts. I.H.P.: 7,000 = 15 kts. Coal: 3,000 tons. (Baltic). Complement: 112.

Added 1938, courtesy Messrs. Burmeister & Wain.

DAVIDOFF (ex-*Krasni Oktiabr*, ex-*Nadiejni*). (Burmeister & Wain, 1897). Displacement: 1,525 tons, 1,212 tons *gross*. Dimensions: 184 × 43 × — feet. Machinery: Compound. I.H.P.: 2,200 = 13 kts. (Far East).

(*Photo wanted*).
Of similar appearance to *Davidoff*.

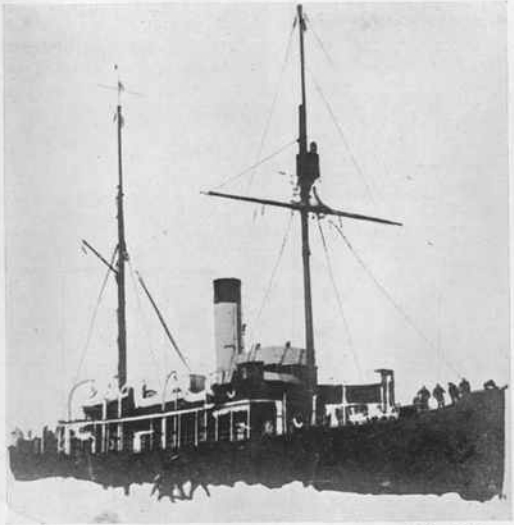
TRUVOR (ex-*Sleipner*). (Burmeister & Wain, 1896). Displacement: 1,450 tons. 1,000 tons *gross*. Dimensions: 165 × 40 × — feet. Machinery: Compound. I.H.P.: 1,900 = 13 kts. (Baltic).

(There are a large number of smaller icebreakers of insufficient importance to warrant their inclusion here.)

Transports.

DESHNEV and 2 others (1938). Particulars wanted.

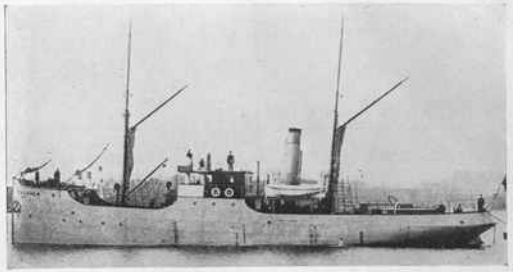
KURSANT (ex-*Krasni Leningrad*, ex-*Sukhona*), (1910), **OKA, MESEN** (1911). Appearance similar to *Krasni Gorn*, on an earlier page, and particulars identical. First ship employed recently as Cadets' Training Ship. All strengthened for ice navigation.



TAIMYR. *Added 1938.*

TAIMYR (1909). Displacement: 1,290 tons. Speed: 10.5 kts. (Strengthened for ice navigation.)

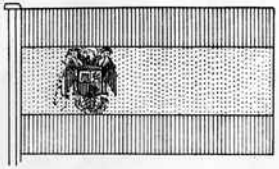
Water Carriers.



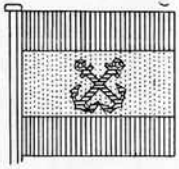
VODOLEI II (1905). Built at Sandvikens. 660 tons. 9·5 kts.
VODOLEI I (1907). 730 tons. 9·5 kts.

SPANISH NAVY.

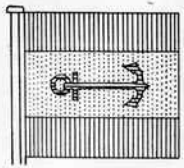
Flags.



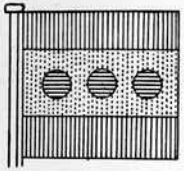
ENSIGN.



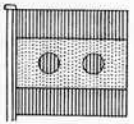
MINISTER OF MARINE.



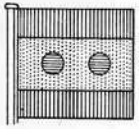
COMMANDER-IN-CHIEF OF NAVY.



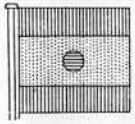
ADMIRAL.



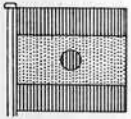
VICE-ADMIRAL IN COMMAND.



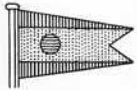
VICE-ADMIRAL SUBORDINATE.



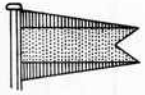
REAR-ADMIRAL IN COMMAND.



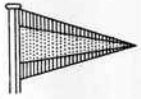
REAR-ADMIRAL SUBORDINATE.



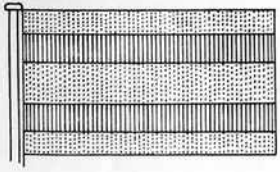
CAPTAIN IN COMMAND OF A DIVISION.



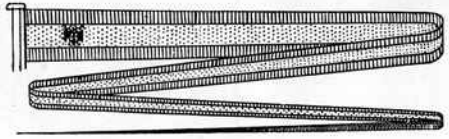
COMMANDER OR LIEUT.-COMMANDER IN COMMAND OF A DIVISION.



SENIOR OFFICER.



MERCANTILE FLAG.



PENDANT.

RED. YELLOW. BLUE.

Minister of Marine—Contralmirante Don Salvador Moreno.

Personnel.

Officers: 950. P.O.'s: 1,350. Sailors and Marines: 20,000.

Capitan-General de la Armada. *Admiral of the Fleet.*	Almirante *Admiral.*	Vice-Almirante. *Vice-Admiral*	Contra Almirante. *Rear-Admiral.*	Captain de Navio *Captain.*	Capitán de Fragata. *Commander.*	Capitán de Corbeta. *Lieutenant-Commander.*	Teniente de Navio. *Lieutenant.*	Alferez de Navio. *Sub-Lieut.*

(The rank of Admiral of the Fleet is held only by the Caudillo, General Franco.)

Other branches, *without a curl*, have distinguishing colours as follows:—

Engineers	...	*green.*	Astronomical	...	*green brown.*
Constructors	...	*blue.*	Pharmacists.	...	*yellow.*
Surgeons.	...	*red.*			
Paymasters	...	*white.*			

Training Establishments.

Shore Establishments are:—For Executive Officers, Naval School (*Escuela Naval Militar*), San Fernando. For Engineering Branch and Cadets, Ferrol. For Accountant Officers, Cartagena.

Naval Ordnance.

Notation.	Nominal Calibre. c/m.	Nominal Calibre. inches.	Model.	Length in calibres	Weight of Gun. tons.	Weight of A.P. shell. lbs.	Initial velocity ft. secs.	Max. penetration A.P. capped direct impact at K.C. at 5000 yards. inches.	Max. penetration A.P. capped direct impact at K.C. at 3000 yards. inches.	Danger Space against average ship, at 10,000 yards.	Danger Space against average ship, at 5000 yards.	Danger Space against average ship, at 3000 yards.	Rounds per minute.
HEAVY	*20·3*	8	V.	50	15	256	3000	...	...	...	...	...	6
MEDIUM	*15·2*	6	*V.	50	7¾	100	3100	...	8¾	...	...	...	10
LIGHT	12	4·7	V.	45	3·1	48·5	2788	...	...	...	...	...	12
	10·2	4	V.	50	2·1	31	3030	...	...	...	...	...	15
	7·6	3	V.										
	7·6	3	A.										

V = Vickers. A = Armstrong.

* Arsenal de Carraca.

Colour of Ships.

Light grey.

Mercantile Marine.

From "Lloyd's Register," 1939 figures. 824 vessels of 913,898 gross tonnage.

"Cad Martin" and "Arçila" *types.*

Alcazar. Tetuan.

Canovas del Castillo. Canalejas. Dato.

Malaspina.

Calvo Sotelo.

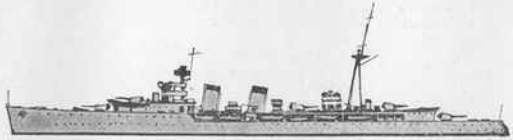
Canarias.

Jupiter *class.*

Almirante Cervera.

Navarra.

Alm. Antequera *class.*



Galicia. Miguel de Cervantes.

Mendez Nuñez.

T.B's.

Churruca *class.*
(Later units have tripod foremast.)

Alsedo. Velasco. Lazaga.

"C" *Class.*

B 2.

1st Class Cruiser

(*Crucero de la Clase*).

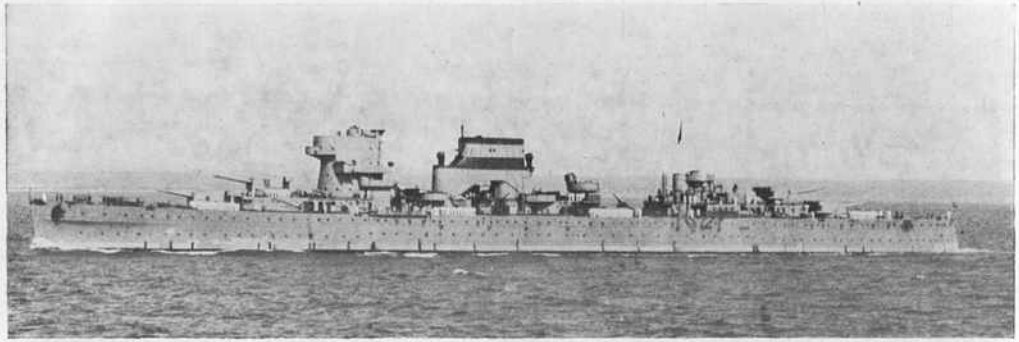
CANARIAS (May 28th, 1931).

Displacement: 10,000 tons *standard* (12,230 tons *full load*). Complement, 765.

Length, 636 feet.

Beam, 64 feet.

Draught, 17½ feet (*mean*).

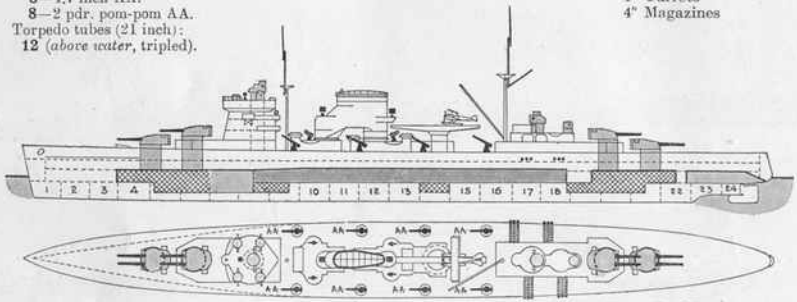


CANARIAS. 1939.

Guns:
8—8 inch.
8—4.7 inch AA.
8—2 pdr. pom-pom AA.
Torpedo tubes (21 inch):
12 (*above water*, tripled).

Aircraft:
2, with catapult

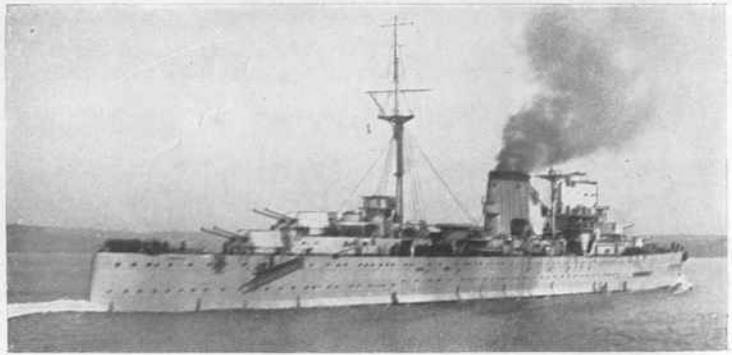
Armour:
2"—1¼" Side
1" Turrets
4" Magazines



Machinery: Parsons geared turbines. Designed S.H.P. 90,000 = 33 kts. Boilers: 8 Yarrow. Oil: 2,794 tons. Radius: 8000 miles at 15 kts.

General Notes.—Designed by Sir Philip Watts, laid down at Ferrol, August 15, 1928, and completed in 1935. Sister ship *Baleares* torpedoed and sunk, March 6, 1938.

Gunnery Note.—Maximum elevation of 8-inch guns is 70°.



CANARIAS (Main mast now much less lofty). 1936, *Mr. G. L. Blowers, R.N.*

GALICIA (ex-*Libertad*, ex-*Principe Alfonso*) (Jan. 3rd, 1925), **ALMIRANTE CERVERA** (Oct. 16th, 1925), and **MIGUEL DE CERVANTES** (May 19th, 1928).

Standard Displacement, 7,475 tons. *Full load*, 9,237 tons.

Length, 575 feet, (*p.p.*) 579½ feet, (*o.a.*) Beam, 54 feet.

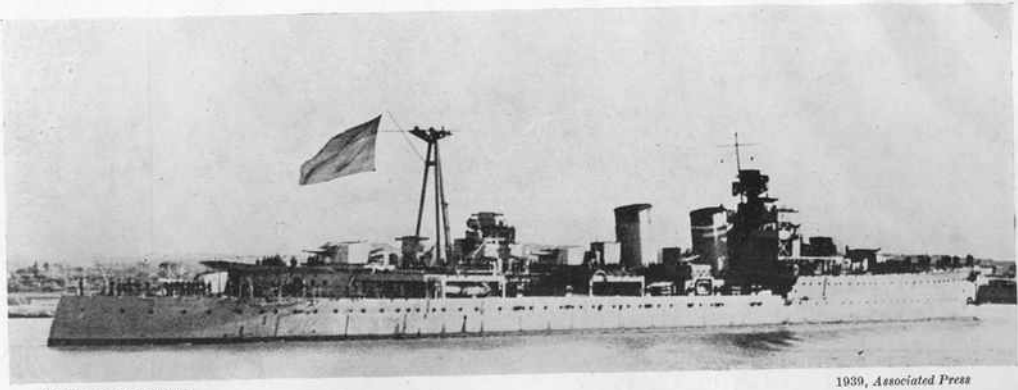
Draught, *mean* 16½ feet, *deep load* 20½ feet.

Complement, 564.

Guns:
- 8—6 inch, 50 cal.
- 4—4 inch, 45 cal. AA.
- (4—4·1 inch A.A. in *Cervera*.)
- 2—3 pdrs. AA.
- 1 Machine.

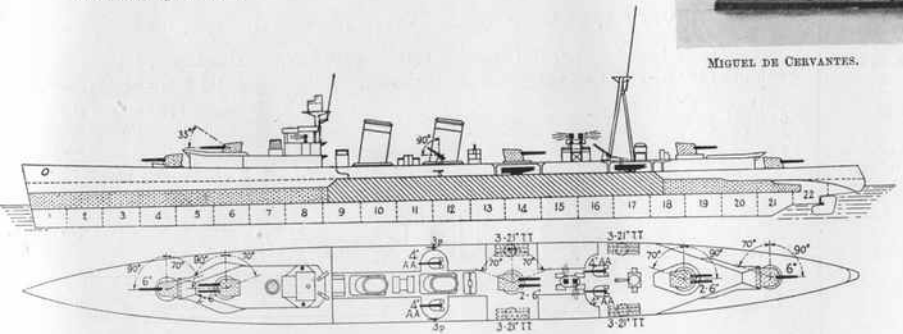
Tubes:
- 12—21inch (tripled) in revolving mounts on upper deck.

Armour:
- 3″ Side (amidships.) .....
- 2″ Side (forward.) .....
- 1½″ Side (aft.) .....
- 1″ Deck. .....
- 2″ (H.T. ?) over rudder. ?.....
- 6″ Conning tower. ?.....



MIGUEL DE CERVANTES.

1939, *Associated Press*



Machinery: Parsons Geared Turbines. 4 shafts. Designed S.H.P. 80,000 = 33 kts.
Boilers: 8 Yarrow (large tube). Fuel capacity: 500 tons oil, *normal*; 1650 tons oil, *maximum*.
Endurance: 5000 at 15 kts., 1200 at *full power*.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*
Libertad *Alm. Cervera* *M. de Cervantes*	Ferrol D.Y.	S. E. C. N.	Aug. '22 25 Nov '22 Apr. '26	Dec. '25 May '27 1931	83000 = 34·7.	Yarrow

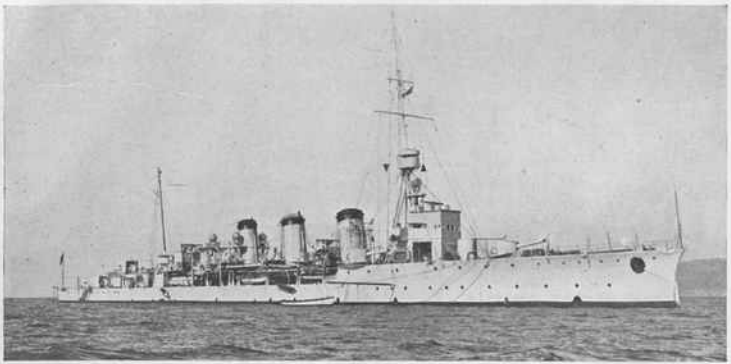
Notes.—Laid down by S.E.C.N. at Ferrol D.Y., under Navy Law of 17th Feb., 1915. Cost estimated at about 8122 pesetas a ton.

Designed under direction of late Sir Philip Watts, K.C.B., Director of Sir W. G. Armstrong, Whitworth & Co., Ltd., for Spanish Government. Are practically modifications of British "E" class, with second, third and fourth gun positions paired and beam guns omitted.

ALM. CERVERA.

1939.

DD



Observe tripod foremast and s.l. around after funnel. 1932 *Photo, Capitan M. Mille.*

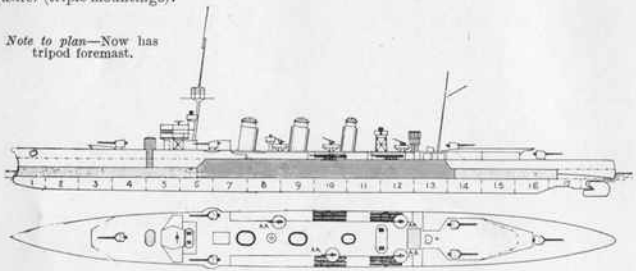
MENDEZ NUÑEZ (3rd March, 1923).

Standard Displacement: 4509 tons. (*full load*, 6043 tons). Complement, 320.
Length, (*p.p.*) 440 feet, (*o.a.*) 462 feet. Beam, 46 feet. Draught, 14¼ feet *mean* 19 feet *max.*

Guns:
6—6 inch, 50 cal.
4—3 pdr. AA.
4 machine.
(1—12 pdr. landing.)
Torpedo Tubes (21 inch):
12 *above water* (triple mountings).

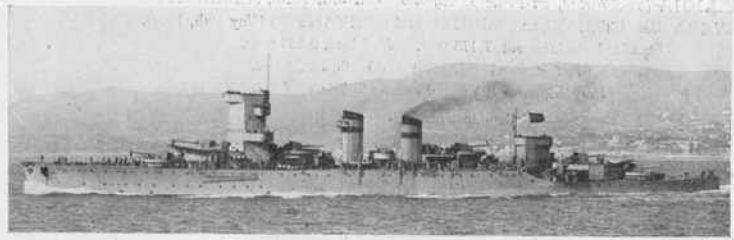
Armour:
3″ Side amidships .....
2½-1½″ Side (ends) .....
1″ Deck .....
6″ C.T. .....
″ Director tower .....

Note to plan—Now has tripod foremast.



Machinery: Parsons (geared) turbines. 4 shafts. Designed H.P.: 45,000 = 29 kts. Boilers: 12 Yarrow (6 oil burning, 6 mixed firing). Coal: *normal*, 250 tons; *maximum*, 787 tons + 492 tons oil. Radius: 5,000 miles at 13 kts. *Blas de Lezo*, wrecked July 11, 1932, was a sister ship.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*
Nuñez	Ferrol D.Y.	S. E. C. N.	28 Sept.'17	1924	43,776 = 29·28	Yarrow



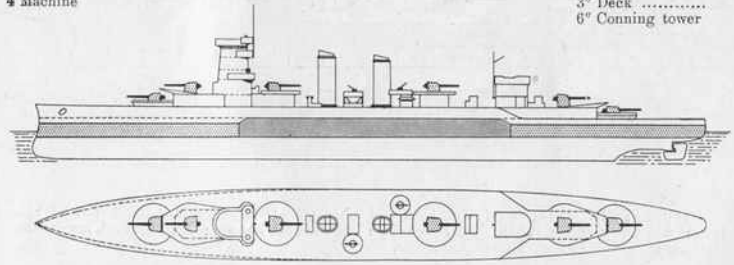
1939

NAVARRA, (ex-*Republica*, ex-*Reina Victoria Eugenia*) (21st April, 1920).

Standard Displacement, 4857 tons. 6348 tons *full load*. Complement, 404.
Length (*p.p.*) 440 feet, (*o.a.*) 462 feet. Beam, 50 feet. *Mean* draught, 15¾ feet, *max.*, 21¾ feet.

Guns (Vickers):
6—6 inch, 50 cal.
4—3.4 inch AA.
4 Machine

Armour (Nickel and H.T.):
3″ Side .....
2½-1¼″ Ends .....
3″ Deck .....
6″ Conning tower



Machinery: Parsons turbines. 2 shafts. Designed H.P.: 25,500 = 25·5 kts. Boilers: 8 Yarrow. Oil fuel: 1,200 tons. Radius: 4,500 miles at 15 kts.

Gunnery Notes.—6 inch are Vickers models, built at La Carraca.

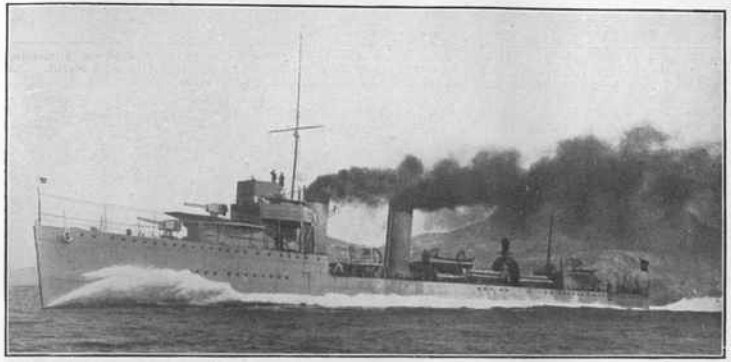
Name	*Builder*	*Machinery*	*Ordered*	*Laid down*	*Completed*	*Trials*	*Boilers*	*Best recent speed*
Navarra	Ferrol D.Y.	S. E. C. N.	Aug. '14	Mar. '15	15 Jan., '23	8 hours: 26,049 = 25·77 4 hours: 28,387 = 26·9	Yarrow	

General Notes.—Built under Navy Law of July 30, 1914. Refitted and reboilered at Cadiz, 1937–38, changes involved being reduction of funnels from 3 to 2, removal of 3 guns of main armament, new bridgework and masts.

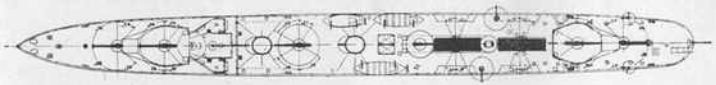
Destroyers (*Destructores*).

Note.—4 ex-Italian destroyers, acquired during the Civil War, have been discarded.

15 Churruca class.



1926 *Photo, by courtesy of the Ministry of Marine.*



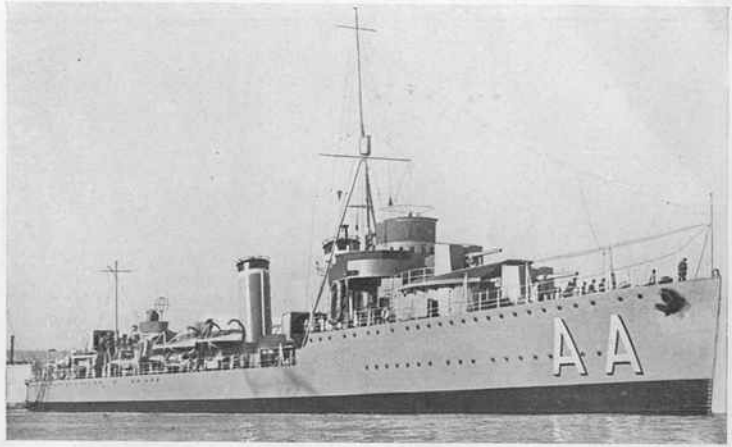
First Group (6). Appearance as above photo.

SANCHEZ BARCAIZTEGUI (July 24, 1926), **JOSÉ LUIS DIEZ** (Aug. 25, 1928), **LEPANTO** (Nov. 7, 1929), **ALCALÁ GALIANO** (April 12, 1930), **ALMIRANTE VALDÉS** (Sept. 8, 1930), **CHURRUCA** (1929).

All built at Cartagena by S.E. de C.N. Displacement: 1,536 tons *standard*, 2,087 tons *full load*. Dimensions: 320 (*pp.*), 333 (*o.a.*) × 31¾ × 17 feet *max.* draught. Complement: 175. Guns: **5**—4·7 inch, **1**—3 inch AA., **4** M.G. 2 D.C. Throwers. Armament of all these ships is reported to have been modified to permit of increased anti-aircraft fire. Torpedo tubes: **6**—21 inch (tripled). Machinery: 2 sets Parsons geared turbines. 2 shafts. S.H.P.: 42,000 = 36 kts. Boilers: 4 of 3-drum type. Oil fuel: 540 tons. Radius: 4,500 miles at 14 kts.

Notes.—Design generally follows that of British flotilla leaders of *Scott* class. Two earliest ships of this class, originally named *Alcalá Galiano* and *Churruca*, were sold to Argentina, 1927, new units bearing same names being built to replace them. *Alm. Juan Ferrandiz* and *Ciscar* sunk in Civil War, Sept., 1936 and Oct., 1937, respectively, but latter ship was salved and refitted in 1938–39. *Churruca* torpedoed by submarine, but repaired.

Following initials are painted on bows: *Sanchez Barcaiztegui, SB; José Luis Diez, JD; Lepanto, LP; A. Galiano, AG; Ciscar, CC.; Alm. Valdés, AV; Alm. Antequera, AA; Alm. Miranda, AM; Gravina, GR; Escaño, ES; Ulloa, UL; J. Juan, JJ.; Churruca, CH.*



ALM. ANTEQUERA. 1935, *courtesy Capitán M. Mille.*

Second Group (7). All as above photo.

ALMIRANTE ANTEQUERA (Dec. 29, 1930), **ALMIRANTE MIRANDA** (June 20, 1931), **GRAVINA** (Dec. 24, 1931), **ESCAÑO** (June 28, 1932), **ULLOA** (July 24, 1933), **JORGE JUAN** (March 28, 1933), **CISCAR** (Oct. 26, 1933). Details as in preceding column.

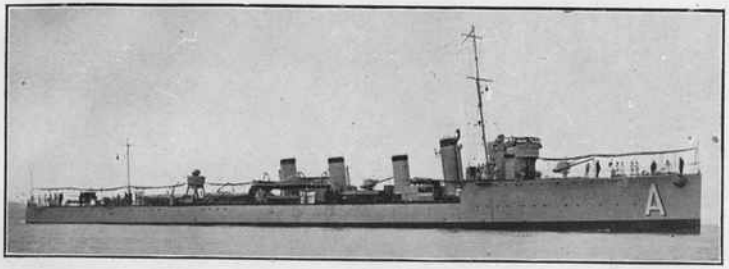
Third Group (2).

Building.

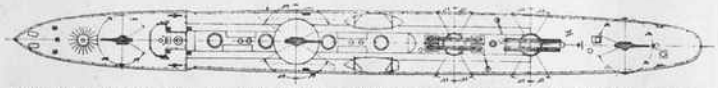
ALAVA, LINIERS. Laid down at Cartagena by S.E. de C.N., 1936, and construction recently resumed. Displacement: *About* 1,700 tons. Of same general design as 2nd group, but armament as follows: Guns: **4**—4·7 inch, **4**—25 mm. AA. (twin mounts). Torpedo tubes: **8**—21 inch (quadrupled). The 4·7 inch guns will be of a new and greatly improved model, elevating to 45°.

Destroyers—*continued.*

3 Alsedo Class.



ALSEDO. 1928 *Photo, Abrahams & Sons, Devonport.*



3 *Alsedo* class: ***Alsedo*** (Oct. 26, 1922), ***Velasco*** (1923), ***Lazaga*** (March, 1924). All built at Cartagena. Displacement: 1,145 tons (*normal*), 1,315 tons (*full load*). Dimensions: 275 (*p.p.*), 283 (*o.a.*) × 27 × 15 feet. (*max.*) Parsons geared turbines. 4 Yarrow boilers. H.P. 33,000 = 34 kts. (36 kts. reached on trials). Fuel: 272 tons oil only. Radius: 2,500 miles at 15 kts. Guns: 3—4 inch, 40 cal., 2—2 pdr. anti-aircraft. Torpedo tubes: 4—21 inch in 2 twin deck mountings. Complement, 70.

Notes.—Provided under Law of 1915. First of class laid down about June, 1920. Design resembles British *Nimrod* type. *Lazaga* was originally known as *Juan Lazaga*. Are distinguished by initial letters painted on bows, viz., *Alsedo, A; Lazaga, L; Velasco, V.*

Torpedo Boats (*Torpederos*).

1931 *Photo, Capitán M. Mille.*

6 *Vickers-Normand.* Numbered **7** (1914), **9, 14** (1915), **16** (1916), **17, 19** (1918). Displacement: 177 tons. Dimensions: 164 × 16½ × 6½ feet (*max.* draught). Armament: 3—3 pdr., 3—18 inch tubes, twin amidships and single aft. H.P.: 3,750 = 26 kts. Parsons turbines and Normand boilers. Coal: 33 tons. 2 shafts (except No. 7, which has 3). Complement: 31. 24 boats sanctioned under Law of the 7th January, 1908, but Nos. 23 and 24 were abandoned 1919. No. 22 completed 1921. All are fitted for minelaying. Nos. 1, 4, 5, 11 scrapped 1931; 6, 8, 10, 12, 13, 15, scrapped 1932; No. 2 lost in Sept., 1937. Nos. 3, 18, 20, 21, and 22 were discarded during 1938-39.

Note.—TB 14, 16, 17, 19 are now used and rated as Minelayers.

6 + 3 (*building*) Submarines (*Submarinos*)

Construction suspended during Civil War but since resumed.

3 *Admiralty* type; ***D 1 D 2, D 3,*** All under construction at Cartagena. Displacement: 1,050/1,375 tons. Dimensions: 275½ × 21½ × 13½ feet (*mean*). H.P.: 5,000/1,350 = 20·5/9·5 kts. Tubes: 6—21 inch (4 bow, 2 stern). Guns: 1—4·7 inch, 4—2 pdr. Diving limit, 50 fathoms. Radius *on surface*: 9,000 miles.

C 2. 1933 *Photo, Capitán Mateo Mille.*

5 *Electric Boat Co.* design: Built at Cartagena: ***C 1*** (March 28, 1927), ***C 2*** (May 4, 1928), ***C 3*** (Feb. 20, 1929), ***C 4*** (July 6, 1929), ***C 5*** (Dec. 28, 1929). Displacement: 842 tons *on surface*, 1,290 tons *submerged*. Dimensions: 247 (*o.a.*) × 20½ × 13½ feet. Machinery: 2 sets 6-cylinder Vickers Diesel engines. H.P.: 2,000 = 16 kts. (*surface*), 8½ kts. (*submerged*). Guns: 1—3 inch AA. Torpedo tubes: 6—21 inch (4 bow, 2 stern). Diving limit, 45 fathoms (reached by *C* 1 on trials in 1928). Complement: 40.

Notes.—About Sept. 1930 *C* 1 was named ***Isaac Peral,*** and in 1937 two others, *C* 3 and *C* 5, were given respective names of ***Mola*** and ***Sanjurjo.*** *C* 3 was sunk at Malaga in Dec., 1936, but was salved some months later and towed to Cadiz for refit. *C* 6 sunk at Gijon.

1933 *Photo, Capitán M. Mille.*

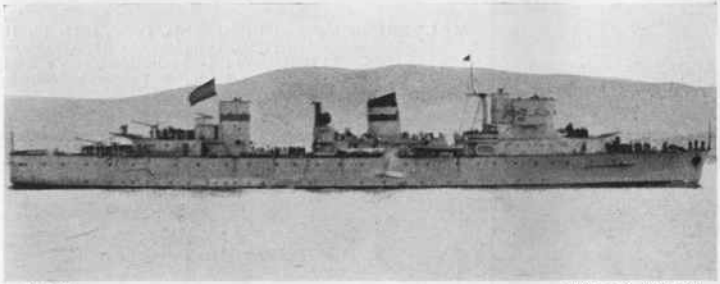
1 *Electric Boat Co.* design: ***B 2*** (1922), laid down at Cartagena, July, 1916. Displacement: 491 tons *on surface*, 715 tons *submerged*. Dimensions: 205 (*p.p.*), 210½ (*o.a.*) × 18½ × 11½ feet. Machinery: *on surface*, 2 sets 8-cyl. Nelseco Diesel engines, totalling 1,400 B.H.P. = 16 kts.; when *submerged*, electric motors and batteries of 850 H.P. = 10—10½ kts. Trial results for class averaged $\frac{16·8}{10·7}$ kts. Guns: 1—3 inch. Torpedo tubes: 4—18 inch. Provided for by Law of 1ºth February, 1915. Complement, 28. Radius *on surface*, 8,000 miles at 10½ kts.; *submerged*, 125 miles at 4½ kts.

Note.—*B* 6 (shown in above photo) was sunk during Civil War, September, 1936. Others of this class have been scrapped, and *B* 2 is only retained for training purposes.

Minelayers.

Completing.

EOLO (August, 1939), **TRITÓN** (1940). Laid down by S.E. de C.N. at Ferrol, 1936. Displacement: 1,500 tons. Dimensions: 278 × 38½ × 10 feet. Guns: 4—4 inch, 4—40 mm. AA., 4—13 mm. AA. Stowage for 70 mines. Speed: 18·5 kts. Design resembles Mexican *Queretaro* type.

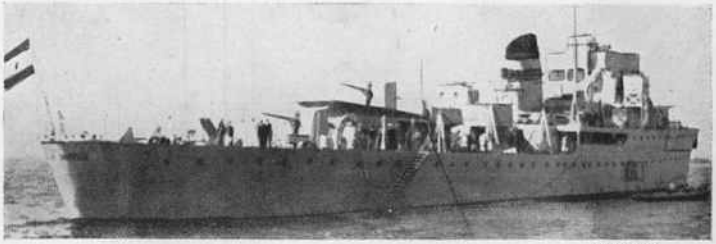


JÚPITER. 1938, *J. R. Potts, Esq.*

JUPITER (Sept. 14, 1935), **VULCANO** (Oct. 18, 1935), **MARTE** (June 19, 1936), **NEPTUNO** (Dec. 19, 1937). All built at Ferrol. Displacement: 2,100 tons. Dimensions: 302¾ (*pp.*), 315 (*o.a.*) × 41½ × 11½ feet. Guns: 4—4·7 inch, 2—3 inch AA. (except *Vulcano*, 2—3·4 inch AA.), 4—20 mm. AA. (twin mounts), 2 D.C. Throwers. Machinery: 2 sets Parsons geared turbines. H.P.: 5,000 = 18·5 kts. Yarrow boilers. Fuel: 280 tons. Stowage for 264 mines. Complement: 123.

Sloops, rated as 1st Class Gunboats.

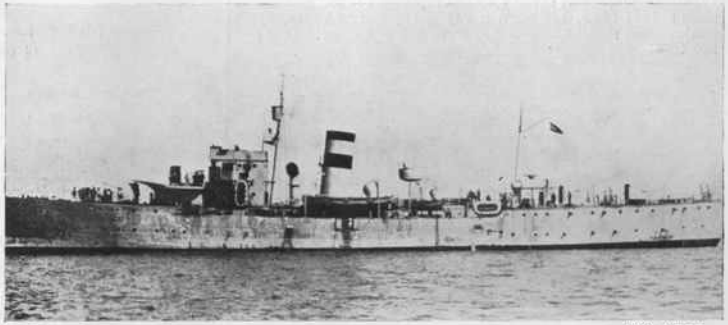
(Cañoneros de 1ª Clase).



Added 1940.

CALVO SOTELO (ex-*Zacatecas*) (Echavarrieta y Larrinaga, Cadiz, August 27, 1934). Displacement: 1,600 tons. Dimensions: 282 × 40 × 10 feet. Guns: 4—4 inch, 2—3 inch AA., 3—20 mm. AA. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 6,500 = 20 kts. Yarrow boilers.

Note.—This ship was completing for the Mexican Navy in 1936, when she was acquired by the Spanish Government.



DATO. 1939, *Official.*

CANOVAS DEL CASTILLO (Jan. 21, 1922), **CANALEJAS** (Dec. 1, 1922), **DATO** (1923). Built by S.E.C.N., at Cartagena. Displacement: 1,314 tons. Complement: 220. Dimensions: 236½ (*pp.*), 251½ (*o.a.*) × 33¾ × 11¾ feet. Guns: 4—4 inch (except *Canalejas*, 4—4·1 inch), 2—3 inch AA., 2 pom-poms (for landing). No torpedo tubes. Machinery: 2 sets triple expansion. Boilers: 2 Yarrow. Designed I.H.P.: 1,700. Speed: 15 kts. Fuel: 324 tons coal *or* oil = 6,500 miles at 10·5 kts. Provided for by Law of Feb. 17, 1915, and ordered Jan., 1920. *C. del Castillo* and *Canalejas* completed 1923, *Dato* completed 1924. These ships were originally named *Antonio Canovas del Castillo*, *Jose Canalejas*, and *Eduardo Dato*, but names have since been shortened.

Coastguard Vessels (*Guardacostas*).

(Ex-trawlers, purchased in England and France, 1922.)

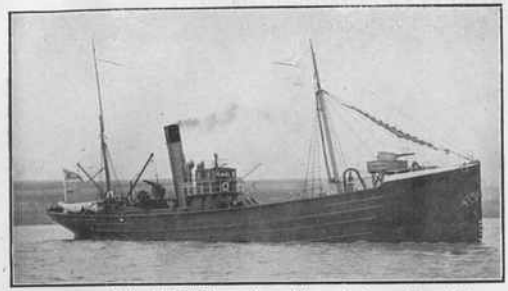
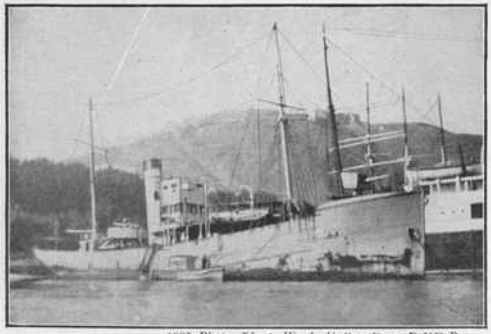


Photo added 1925 by courtesy of Messrs. Cochrane & Sons, Ltd.

1 *Special type*: **UAD KERT** (ex-*Rother*, ex-*Anthony Aslett*, Cochrane & Sons, Ltd., Selby, 1917). Displacement: 640 tons. Complement, 39. Dimensions: 130 (*p.p.*) × 23½ × 15¾ feet. Guns: 2—3 inch. I.H.P. 500 = 9·5 kts. Coal: 200 tons.

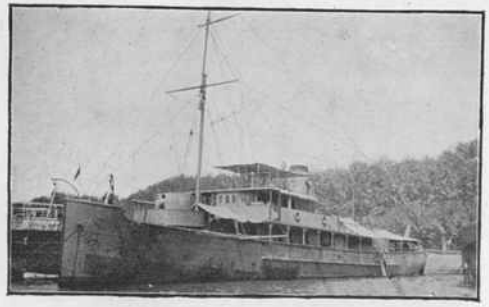
2 "*Mersey type*" **ARCILA** (ex-*William Doak*, Goole S.B. & Rep. Co., 1918). **XAUEN** (ex *Henry Cramwell*, Lobnitz, 1918). Displacement: 750 tons. Complement: 39. Dimensions: 138½ (*pp.*), 148 (*o.a.*) × 23¾ × 15¾ feet. (*Xauen*, 17 feet). Guns: 2—3 inch. I.H.P.: 500 = 10 kts. Coal: 200 tons.



1925 *Photo, Lieut. W. A. Fuller, Esq., R.N.V.R.*

1 "*Castle type*": **UAD MARTIN** (ex-*Erne*, ex-*John Chivers*, Bow, McLachlan & Co., 1917). Displacement: 600 tons. Complement: 39. Dimensions: 125 (*pp.*) × 23½ × 15½ feet. Guns: 1—3 inch. I.H.P.: 500 = 9·5 kts. Coal: 200 tons.

Coastguard Vessels – (*continued*).



ALCÁZAR. 1925 *Photo, Lieut. W. A. Fuller, R.N.V.R.*

2 "*French type*" (builders not reported): **ALCÁZAR** (ex-*Rengagé*), **TETUAN** (ex-*Grognard*). Displacement: 400 tons. Complement: 41. Dimensions: 134½ × 23½ × 11¾ feet. Guns: 1—3 inch, 2—3 pdr. I.H.P.: 425 = 10 kts. Coal: 80 tons.

Motor Launches (*Lanchas rapidas*).

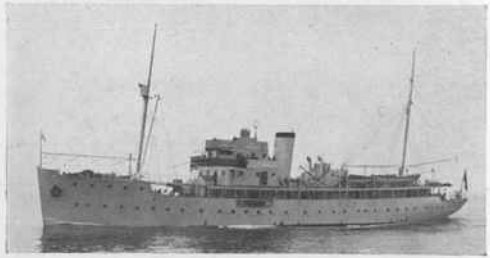
(4 under construction.)

TOLEDO, OVIEDO, REQUETÉ, BOLIDO. Displacement: 46 tons. Armament: 1—20 mm. AA., 1—8 mm. Doubtful if torpedoes are now carried. Machinery: Diesel. B.H.P.: 2,400 = 30 kts. (now less).

CANDIDO PEREZ. Displacement: 27 tons. Of Italian design.

DAR I, DAR II. Displacement: 16 tons. Of Italian design. (These may possibly be ex-*M.A.S.* 435, 436.)

Surveying Vessels (*Buques Planeros*).



1934 *Photo, Capt. Mateo Mille.*

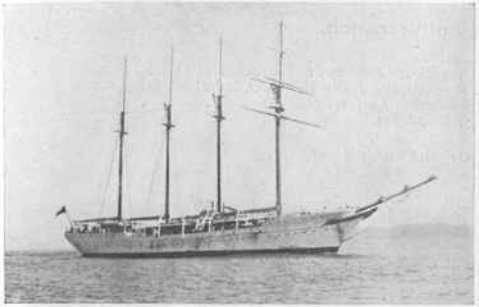
MALASPINA (ex-*Bausá*) (Matagorda, Cadiz, Sept. 13, 1935), Displacement: 1,200 tons. Complement: 130. Dimensions: 224 × 35 × 11 feet. Guns: 1—3 pdr. Machinery: Reciprocating. H.P.: 850 = 12·5 kts. 2 Yarrow boilers. Fuel: 190 tons. 1 Seaplane.

Photo wanted.

Is being reconstructed for Colonial service.

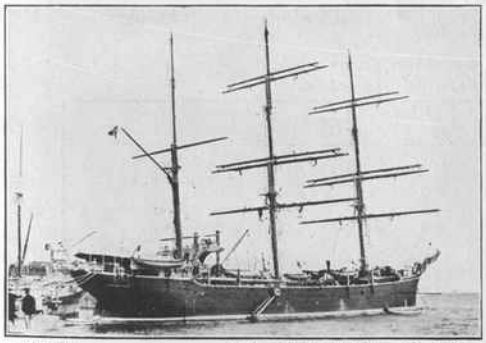
ARTABRO (1935). Displacement: 770 tons. Dimensions: 187 × 34½ × 8½ eet. Machinery: Burmeister & Wain Diesels. B.H.P. 700 = 9 kts. 1 Seaplane.

Training Ships (*Buques Escuelas*).



1931 *Photo.*

JUAN SEBASTIAN DE ELCANO. (Echevarrieta Yard Cadiz, 5th March, 1927), completed 1928. Four-masted Schooner. Displacement at ¾ load : 3420 tons. Dimensions : 269¼ (*p.p.*), 308½ (*o.a.*) × 43 × 23 feet *full load* draught. Guns: 4—6 pdr. 1 Sulzer Diesel motor of 800 H.P. = 9·5 kts. 1 screw. Oil : 230 tons. Endurance : 10,000 miles at 9·5 kts. Complement : 224 + 80 cadets.



GALATEA. *Photo, Manuel I. Codoner, Esq.*, 1927.

GALATEA (ex-Barque *Clarastella*, 1896). Purchased in Italy, 1922. 2,713 tons. Dimensions : 243 × 38¾ × 17¾ feet. Guns : 4—6 pdr. 2 auxiliary Diesel motors, combined H.P. : 900 = 8·5 kts. Fuel : 46 tons. T.S. for boys.

ESTELLA. Schooner used for training purposes.

Oilers.

Note.

2 small oilers were launched at Santander in 1939. Reported to be of only 500 tons deadweight capacity. Dimensions : 138 × 25 × — feet. Diesel engines. B.H.P. : 300 = 9 kts.

1935 *Photo, Capitán M. Mille.*

PLUTÓN (ex-*Campilo*) Valencia, 1931). Purchased in Dec., 1934. Displacement : 4,550 tons (in light condition). Dimensions : 342½ × 53¾ × 19½ feet. 2 sets B. & W. Diesels, built in Barcelona. H.P. : 2,530 = 13·5 kts.

River Patrol Boat

1936, *Capitán M. Mille.*

CABO FRADERA. Displacement : 44 tons. Complement, 11. Dimensions : 74¾ × 14½ × 4½ feet. Guns : 1—42 mm. H.P., 120 = 10 kts. Engaged in patrol of River Miño (Minho) on Portuguese frontier.

Sea-going Tugs (*Remolcadores*).

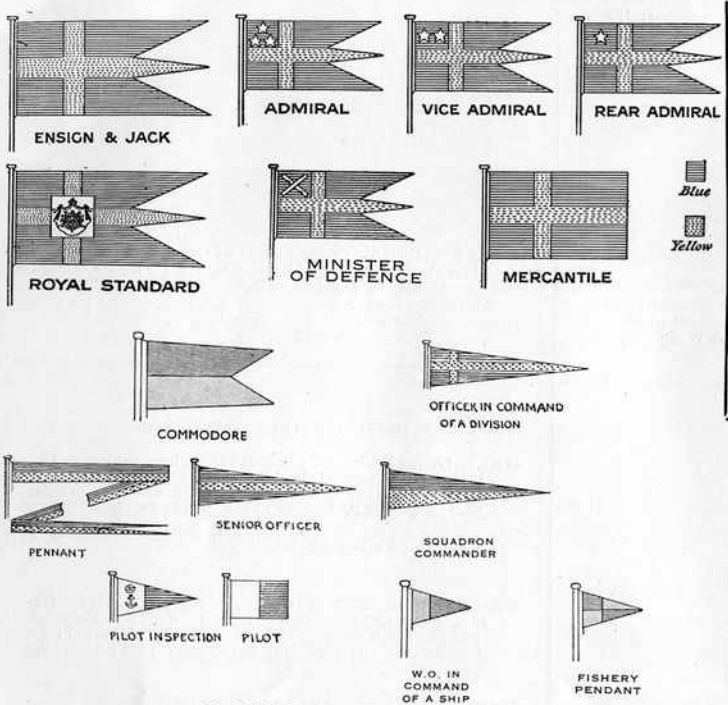
GALICIA (ex-British *St. Clement*). Built by Crichton & Co., 1918, and purchased in 1922. Displacement : 820 tons. Dimensions : 135½ × 29 × 14½ feet (*max.* draught). Guns : 1—3 inch. I.H.P. 1,250 = 12 kts. Coal : 240 tons.

Note.—Though this vessel bears the same name as a cruiser described on an earlier page, it has not so far been changed.

CARTAGENERO (ex-*H.S.* 78), **FERROLANO** (ex-*H.S.* 80). **GADITANO** (ex-*H.S. 82*). Built by Crichton & Co., South Saltney, Chester, 1918. Displacement : 300 tons. Dimensions : 83½ × 21½ × 10½ feet. Guns : 1—6 pdr. H.P. : 420 = 10 kts.

Note.—There are a number of smaller tugs in service.

ROYAL SWEDISH NAVY.



Note.—The blue is azure in every case but last 3 pendants.

Colour of Ships.

Light Grey all over, excepting S/ms and some training ships. Displacements "Standard."

Navy Estimates.

1937–38: 38,000,000 kronor.
1938–39: 49,364,000 „
1939–40 : 70,000,000

Mercantile Marine.

From "Lloyd's Register." 1939 figures.
1238 vessels of 1,581,919 gross tonnage.

Administration.

Minister of Defence : Hr. P. E. Sköld, M.P.
Commander-in-Chief of the Navy (including Coast Artillery) : Vice-Admiral C. F. Tamm.
President of the Navy Technical and Administrative Board : Rear-Admiral K. G. Bjurner.
Commander-in-Chief of the Fleet : Rear-Admiral Count Gösta Ehrensvärd.
Naval Attaché (London) : Captain N. J. Wesström.

INSIGNIA OF RANK ON SLEEVES.

	Amiral.	Vice-amiral.	Konter-amiral.	Kommendör.	Kommendörkapten av: 1 graden.	Kommendörkapten av: 2 graden.	Kapten.	Löjtnant.	Fänrik
British equivalent	*Admiral.*	*Vice-Ad.*	*Rear-Ad.*	*Commodore.*	*Captain. (Senior)*	*Captain. (Junior)*	*Commander & Lieut.-Com.*	*Lieutenant.*	*Sub-Lieut.*

Paymasters have similar stripes with *white* braid following uppermost stripe.
Other branches have stripes with triangular curl, and colour between stripes as follows :—
Constructors and Engineers, *purple blue ;* Doctors, *scarlet.*
Personnel : Active List, *about* 5500 officers and men. Total for Reserves cannot be estimated, as it is dependent on conscription, but includes 700 officers.

Modern Swedish Guns (Bofors).

(*Details furnished by Bofors*).

Designation		Length in calibres	Model	Weight of gun	Weight of A.P. shot	Initial velocity	
cm.	inches			tons	lbs.	ft. secs.	
28·3	11	45	'12	44·2	672½	2,850	Sverige *class*
21·0	8·3	45	'98	18·0	275½	2,460	Oscar II, Äran *class*
15·2	6·0	55	'30	10·0	101½	2,950	Gotland
15·2	6·0	50	{'03 '12}	7·8	100	2,700	Oscar II, Sverige *class*
15·2	6·0	44	'98	6·0	100	2,460	Äran *class*, Fylgia
12·0	4·7	46	{'24 '34}	3·0	46½	2,625	{Ehrensköld *class* Göteborg *class*
12·0	4·7	50	'11	3·9	46½	2,825	Clas Fleming
12·0	4·7	45	'04	2·8	46½	2,430	Örnen *class*
10·5	4·1	41	'25	1·2	35½	2,300	Draken *class*
7·5	3·0	60	'26	1·3	12½	2,780	Gotland
7·5	3·0	50	'24	1·1	12½	2,660	Sverige class, Dristigheten, Valen
4·0	1·6	60	{'31 '36}	0·22	2½	2,950	
4·0	1·6	43	'32	0·17	2½	2,300	
2·5	1·0	64	'32	0·06	¾	2,950	

Torpedoes.

21 in., and 18 in. Torpedoes manufactured at Karlskrona.

SVEA

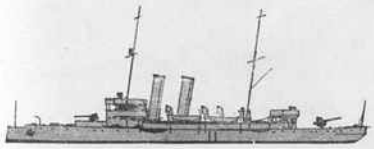
GUSTAF V.

JÄGAREN *class.*

STARKODDER, STYRBJÖRN.

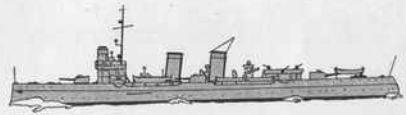
SVERIGE.

REMUS. ROMULUS



ÖRNEN. JACOB BAGGE.
(Topmasts now shorter; *J. Bagge*, no mainmast.)

MANLIGHETEN, TAPPERHETEN, WASA.
Also ÄRAN, with taller after superstructure.



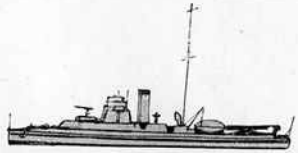
FYLGIA.

DRISTIGHETEN.

DROTTNING VICTORIA.

CLAS FLEMING.
(Now reconstructing).

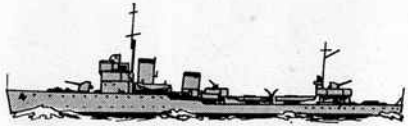
ARHOLMA *class.*



Torpedo Boats 5—9

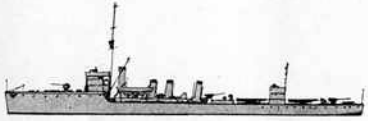
OSCAR II.
(Now reconstructing).

EHRENSKÖLD. NORDENSKJÖLD.
KLAS HORN. KLAS UGGLA (with pole abaft second funnel).

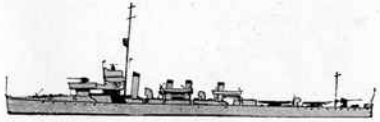


PSILANDER. PUKE.

GOTLAND.

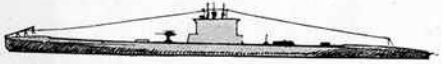


WRANGEL. WACHTMEISTER



WALE *class.*

GÖTEBORG. STOCKHOLM.



DRAKEN *class.*

BÄVERN *class.*

DELFINEN *class.*

SJÖLEJONET *class.*

HAJEN *class.*

VALEN

New Construction.

It is proposed to lay down 2 cruisers in 1941.

(Classed as *Flygplankryssare*).

GOTLAND. (Götaverken. Sept. 14, 1933).

Displacement: 4,775 tons. Complement, 480.

Length, (*w.l.*) 426½ feet, (*o.a.*) 437½ feet. Beam, 50½ feet. *Max.* draught, 18 feet.

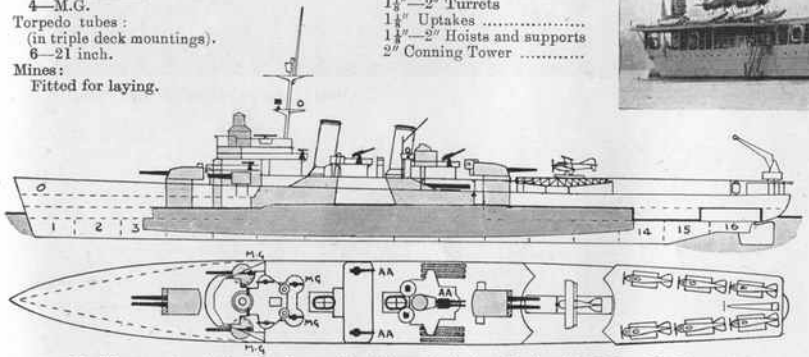
Guns: (Bofors).
6—6 inch, 50 cal. (1930 Model).
4—3 inch AA. (1928 Model).
4—25 mm. AA.
4—M.G.

Torpedo tubes:
(in triple deck mountings).
6—21 inch.

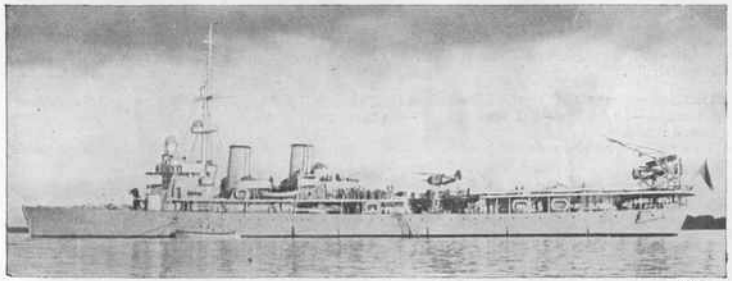
Mines:
Fitted for laying.

Aircraft:
8 Hawker Osprey (space to stow 11).

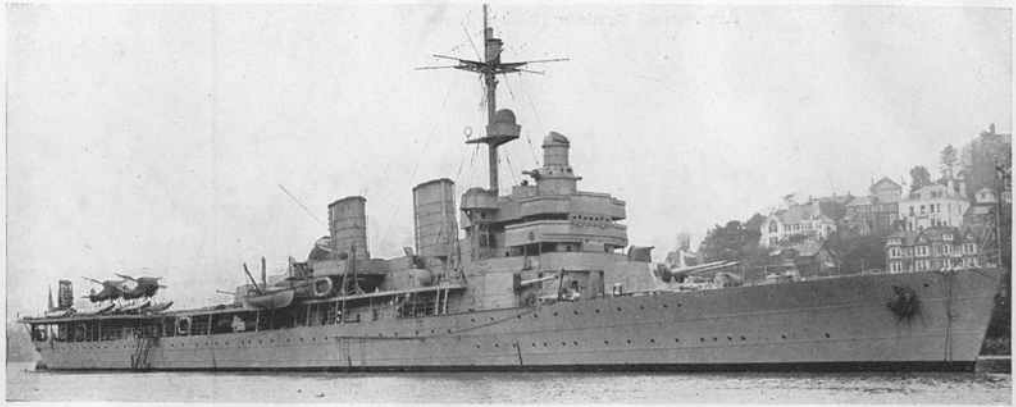
Armour:
1¼″—2″ Side
2″ Deck
⅝″—1½″ vertical Bulkheads.
1¼″—2″ Turrets
1½″ Uptakes .....
1¼″—2″ Hoists and supports
2″ Conning Tower .....



Machinery: 2 sets De Laval geared turbines. 2 shafts. Designed S.H.P.: 33,000 = 27 kts. (Trials, 34,000 = 28 kts.) Boilers: 4 Penhoët. Oil Fuel: 600 tons *normal*, 800 tons *max.*



1935



1936, *R. Perkins.*

General Notes.—The first cruiser designed to act as an aircraft carrier, and represents a well-conceived and exceedingly useful type of warship. Laid down Dec., 1927. Cost exceeded £900,000, by date of completion (Dec., 1934).

Gunnery Notes.—6 inch guns can be elevated to 60°. Range is 26,000 yds.

Aircraft Notes.—Each plane is mounted on a launching trolley, which can be driven by its own motor on to a catapult and connected up to launching mechanism. By this system aircraft can be launched at intervals of 2 minutes. Catapult is of compressed air type.

1936 *R. Perkins.*

1936, *R. Perkins.*

Armoured Cruiser (*Pansarkryssare*).

(Under reconstruction; will be altered as plan).

FYLGIA (Dec. 20, 1905).

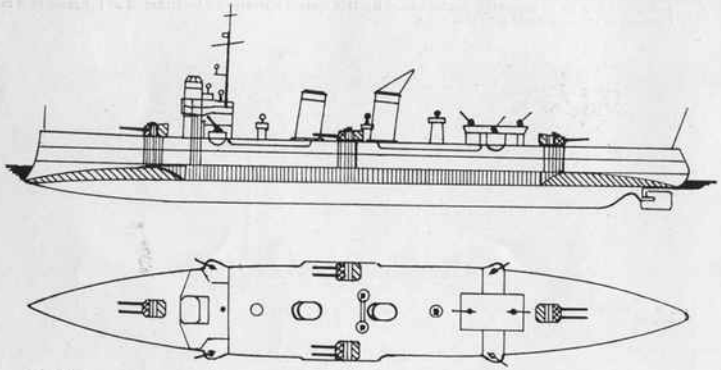
Standard Displacement, 4,700 tons. Complement, 341.

Length (*w.l.*), 377⅝ feet. Beam, 48½ feet. *Max.* draught, 20⅝ feet.

Guns (Bofors).
8—6 inch, 50 cal.
4—57 mm. AA.
4—40 mm. AA.
2 M.G. AA.

Torpedo tubes (21 inch):
2 *above water* (singles)

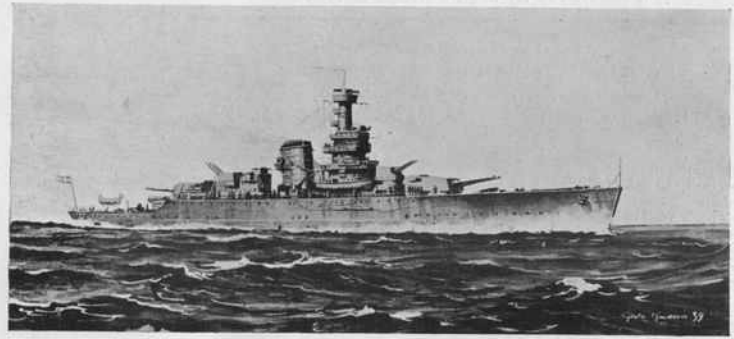
Armour (Krupp):
4″ Belt ... .
2″ Deck (slopes) .....
5″—2″ Turrets
4″ Hoists and supports
4″ Conning tower.....



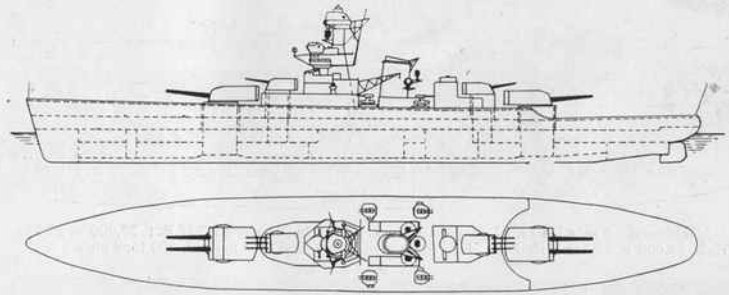
Machinery: 2 sets 4 cylinder triple expansion. 2 shafts. Boilers: 4 Penhoët. Designed H.P.: 13,000 = 21·5 kts. Oil fuel.

eneral Notes.—Laid down by Bergsund Co., Stockholm, in 1903, and completed 1907. Under refit, 1939–40, and will be altered as shown in plan. Will become Cadets' Training Ship in 1941.

Coast Defence Ships (rated as Battleships).



1939 *Illustration, courtesy "Sveriges Flotta."*



Two ordered in 1939, from Kockums Mek. Verkstad A/B, Malmö, and Götaverken, Göteborg, respectively.

Displacement: 8,000 tons. Dimensions: 426½ (*pp.*), 436½ (*w.l.*) × 64 × 18¾ feet.
Guns: **4**—10 inch, **6**—4·7 inch AA., **8**—40 mm. AA.
Speed: 23 kts.
To cost 37,000,000 kronor apiece.

Rated as Battleships (*Pansarskepp*)

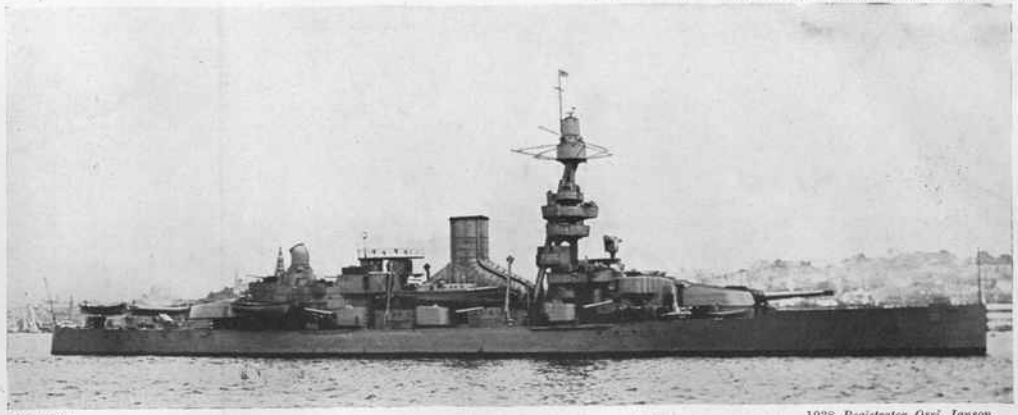
SVERIGE (Götaverken, Göteborg. May 3, 1915).
DROTTNING VICTORIA (Götaverken, Göteborg. Sept. 15, 1917).
GUSTAF V (Kockums Mek. Verkstads A/B., Malmö. January 18, 1918).

Displacement: 7,080, 7,120 and 7,275 tons, respectively. Complement: 450.

Length (*w.l.*) { *Sverige*, 392·8 feet. / *D.V. & G.V*, 396·6 feet } Beam, 61 feet. *Max.* draught, 22 feet.

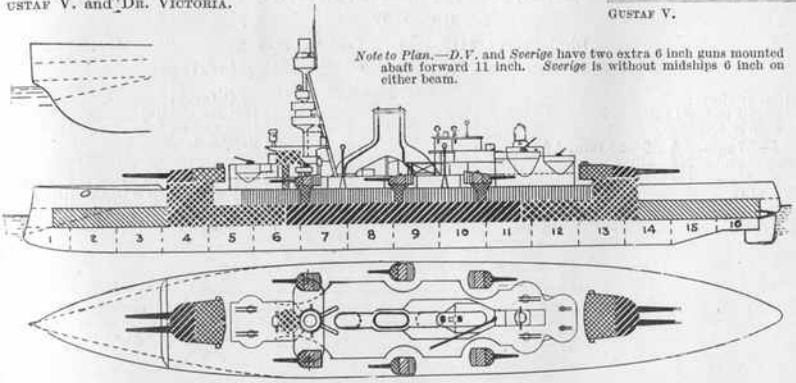
Guns (Bofors):
4—11 inch 45 cal.
6—6 inch, 50 cal. (*Dr. Vic.*, 8)
4—3 inch, AA.
4—40 mm. AA.
4—25 mm. AA.
4—M.G. AA.

Armour: (Carnegie and Bofors).
8″ Belt (amidships).....
6″—3″ Belt (ends)...
1⅜″ Deck (slopes) .....
4″ Redoubt.....
8″ Big gun turrets.....
6″ Barbettes .....
5″—2½″ Small turrets
7″ Conning tower .....



GUSTAF V. 1938, *Registrator Osvi Janson.*

GUSTAF V. and DR. VICTORIA.



Note to Plan.—*D.V.* and *Sverige* have two extra 6 inch guns mounted abaft forward 11 inch. *Sverige* is without midships 6 inch on either beam.

DROTTNING VICTORIA. 1937, *R. Perkins.*

SVERIGE 1940, *Official.*

Machinery: In *Sverige*, Curtis turbines by Kockum Co., 4 screws; in *Gustaf V* and *Drottning Victoria*, Westinghouse geared turbines by the Motala Company. 2 shafts. Boilers: 6 Yarrow (coal and mixed firing) and 2 Penhoët (oil burning) in *Gustaf V* and *Dr. Vic.*; 4 Penhoët (oil burning) in *Sverige*. Designed S.H.P.: 20,000 in *Sverige*; 22,000 in *D. Victoria* and *Gustaf V* = 22·5 kts. Trials: 23 to 23·6 kts. Fuel: *Sverige*, 550 tons oil; other 2 ships, 360 tons coal + 273 tons oil.

Gunnery Notes.—11 inch guns load in 17 seconds. Turrets somewhat cramped; are divided by partition bulkheads.

Armour Notes.—11 inch gun shields are 8″ on fore side, 4″ on side, 4½″ rear. Smaller gunshields are 5″ front, 3″ sides.

General Notes.—Appearance originally as *Drottning Victoria* but with light tripod foremast. *Sverige* refitted 1926 and given heavier foremast; *Dr. Victoria* similarly refitted 1927. *Gustaf V* reconstructed 1929–30 when funnels were trunked into one and upperworks considerably remodelled. In *Sverige* fore funnel was inclined aft to clear the bridgework and second funnel retained, and after superstructure altered, 1932–33. *Drottning Victoria* was reconstructed in 1934–35, when 6 of her original 12 boilers were changed for 2 oil-fired boilers. *Gustaf V* was similarly modernised in 1936–37, and her armament modified. *Sverige* was taken in hand for modernisation in 1938 and completed in 1940.

OSCAR II 1940 *Official.*

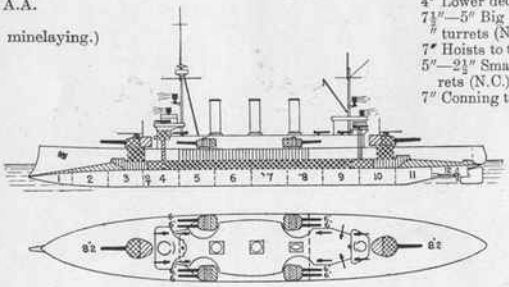
OSCAR II (June 6 1905).

Displacement, 4,320 tons. Complement, 339.

Length (*w.l.*) 313¾ feet. Beam, 50½ feet. *Maximum* draught, 18 feet.

Guns (Bofors):
2—8·3 inch, 44 cal.
8—6 inch, 50 cal.
4—57 mm. A.A.
2—25 mm. A.A.
2 M.G.
(Fitted for minelaying.)

Armour (Krupp):
6″—4″ Belt (amidships)
2″ Deck (slopes)
6″ Bulkheads
4″ Lower deck redoubt
7½″—5″ Big gun turrets (N.C.)
7″ Hoists to these
5″—2½″ Small turrets (N.C.)
7″ Conning tower



Machinery: 2 sets 4 cylinder triple expansion. 2 screws. Boilers: 10 Yarrow (8 coal-fired, 2 oil). Designed H.P.: 9,000 = 18·3 kts. Coal: *normal* 350 tons; *maximum* 500 tons = 2,950 miles at 10 kts.

Notes.—Four searchlights carried—one on each bridge, and one on each mast. Built by Lindholmens Verkstads, Göteborg 1903–07. On Trial: 9,400 = 18·96 kts. To be refitted, 1939.

MANLIGHETEN (WASA and TAPPERHETEN similar; ÄRAN as on following page). 1940 *Official.*

(ÄRAN CLASS—4 SHIPS).

ÄRAN (Aug., 1901), WASA (May 29, 1901), TAPPERHETEN (Nov. 7, 1901) & MANLIGHETEN (Dec. 1, 1903).

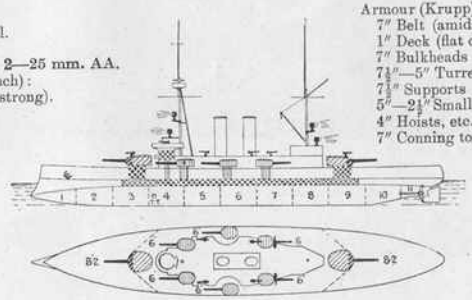
Displacement, 3415, tons. Complement, 301.

Length, (*w.l.*) 287 feet. Beam, 49¼ feet. *Maximum* draught, 16¾ to 17¾ feet.

Guns (Bofors):
2—8·3 inch, 44 cal.
6—6 inch, 45 cal.
4—57 mm. AA., 2—25 mm. AA.
Torpedo tubes (18 inch):
2 *submerged* (Armstrong).
2 M.G.

Manligheten only 8—6 pdr.

Armour (Krupp):
7″ Belt (amidships)
1″ Deck (flat on belt)
7″ Bulkheads
7½″—5″ Turrets
7½″ Supports
5″—2½″ Small turrets (N.C.)
4″ Hoists, etc.
7″ Conning tower



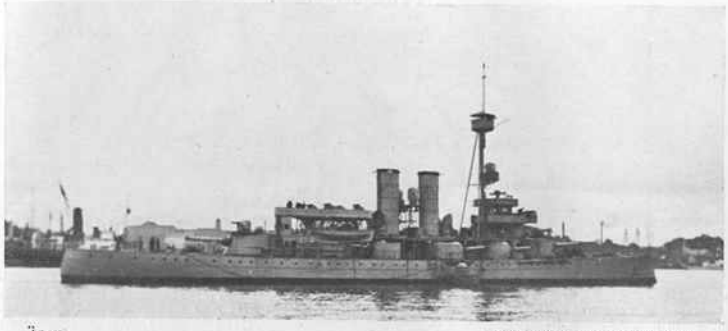
Note to Plan.

All now reconstructed as in photos.

Machinery: 2 sets triple expansion. 2 screws. Boilers: 8 Yarrow (coal-fired), *Manligheten* has 2 oil-fired in addition. Designed H.P.: 7,400 = 17 kts. Coal: *maximum*, 300 tons. Endurance: 2,000 at 10 kts.

Notes.—Where built: *Äran*, Lindholmens, Göteborg; *Wasa*, Bergsund, Stockholm; *Tapperheten* and *Manligheten*, Kockums, Malmö. Completed: *Äran*, *Wasa*, 1902; *Tapperheten*, 1903; *Manligheten*, 1904. Last-named ship struck a mine on Dec. 15, 1939, but was not seriously damaged.

(*This ship is described on preceding page.*)



ÄRAN 1939, *Redaktör K.-E. Westerlund.*

ÄRAN 1940, *Official.*

Destroyers (*Jagare*).

2 Norrköping Class.

Building or Completing.

1 *Eriksberg:* **Norrköping** (Sept. 5, 1940).

1 *Götaverken:* **Gävle.**

No official particulars furnished, but are believed to be slightly improved versions of *Göteborg* type, in following column. It is proposed to lay down 2 more units of this class in 1941.

Destroyers—*continued.*

4 Göteborg class.

(*Fitted for Minelaying.*)

GÖTEBORG. 1936 *courtesy Commander T. Hagman.*

MALMÖ. 1939, *courtesy Eriksberg Verkstad (Builders).*

1 *Götaverken (Göteborg):* **Göteborg** (Oct. 14, 1935).

2 *Karlskrona:* **Stockholm** (March 24, 1936), **Karlskrona** (June 16, 1939).

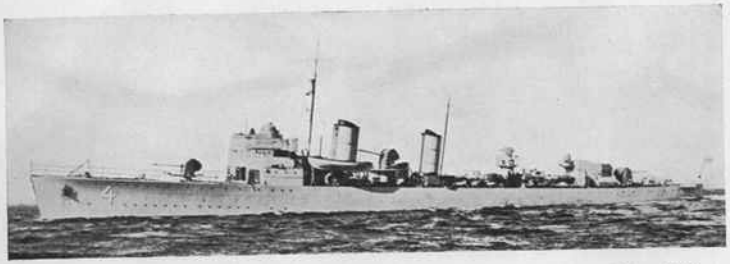
1 *Eriksberg (Göteborg):* **Malmö** (Sept. 22, 1938).

Displacement: 1,040 tons (1,200 tons *full load*). Complement: 130. Dimensions: 304 (*w.l.*), 310½ (*o.a.*) × 29½ × 9 feet (*mean*), 12 feet (*max.*). Guns: 3—4·7 inch, 6—25 mm. AA., 2 M.G. Torpedo tubes: 6—21 inch (tripled). Machinery: De Laval geared turbines. S.H.P.: 32,000 = 39 kts. (*Malmö* exceeded 42 kts. with full load on trials). 3 boilers by Penhoët.

Notes.—First pair laid down in 1933, and completed 1936 and 1937 respectively. Second pair laid down 1936. *Malmö* completed in 1939.

4 Ehrensköld class.

(fitted for Minelaying).



KLAS UGGLA. (*Klas Horn* similar). 1933 *Photo, Official.*

EHRENSKÖLD (Now No. 1). (*Nordenskjöld* similar). 1930, *Registrator Ossi Janson.*

Ehrensköld (Sept 25, 1926), ***Nordenskjöld*** (June 19, 1926). Built by Kockums M.V., Malmö, and Götaverken, Göteborg, respectively. Displacement: 940 tons. Dimensions: 293 (*w.l.*) × 29½ × 12¼ feet (*max.* draught). ***Klas Horn*** (June 13, 1931), ***Klas Uggla*** (June 18, 1931). Laid down 1928, by Kockums M.V. and at Karlskrona D.Y., respectively. Displacement: 1,020 tons. Dimensions: 297 (*w.l.*) × 29½ × 12¼ feet (*max.* draught). Armament: 3—4·7 inch, with 4—25 mm. AA., 2 M.G. in first 2 ships; 6—25 mm. AA., 2 M.G. in later pair. 6—21 inch torpedo tubes in triple deck mountings. Machinery: De Laval geared turbines. S.H.P.: 24,000 = 35 kts. 3 boilers by Penhoët. Fuel (oil only): 150 tons. Radius of action: 600 miles at full speed; 1,600 miles at 20 kts. Complement: 125. Estimated cost: Kr. 7,150,000 each. First pair laid down 1924, completed in 1927 and refitted in 1939. Second pair completed in 1932.

Pendant numbers:	*Ehrensköld* (1).	*Klas Horn* (3).	*Göteborg* (5).
	Nordenskjöld (2).	*Klas Uggla* (4).	*Stockholm* (6).

2 Psilander class.

Appearance as F. CRISPI, *in Italian section.*

Psilander (ex-*Giovanni Nicotera*) (June 24, 1926), ***Puke*** (ex-*Bettino Ricasoli*) (Jan. 29, 1926). Built by Pattison, Naples, and acquired in 1940. Displacement: 935 tons. Dimensions: 275½ × 27 × 9¼ feet. Guns: 4—4·7 inch, 2—40 mm. AA., 2 M.G. Torpedo tubes: 4—21 inch (paired). Machinery: Parsons geared turbines. S.H.P.: 36,000 = 35 kts. Boilers: 3 Thornycroft. Oil fuel: 200 tons *normal*, 255 tons *max.* Complement: 120.

Torpedo Boats.

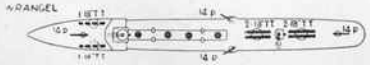
2 Romulus class.

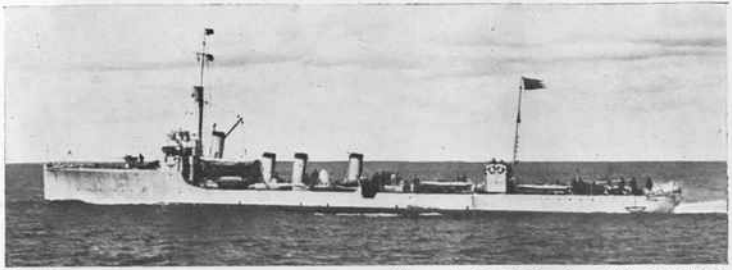
REMUS. 1936

Remus (ex-*Astore*) (April 22, 1934), ***Romulus*** (ex-*Spica*) (March 11, 1934). Built at Napoletani Yard, Naples and acquired 1940. Displacement: 638 tons. Dimensions: 263½ (*o.a.*) × 27 × 7½ feet. Guns: 3—3·9 inch, 47 cal., 6—37 mm. AA., 2—13 mm. AA., 2 D.C. Torpedo tubes: 4—18 inch (2 singles and a pair). Machinery: 2 Tosi geared turbines. 2 shafts. S.H.P.: 19,000 = 34 kts. 2 boilers of 3-drum type. Oil fuel. Complement: 94.

Note.—An alternative proposal was that these ships should have been named *Magne* and *Mode.*

2 Wrangel class.

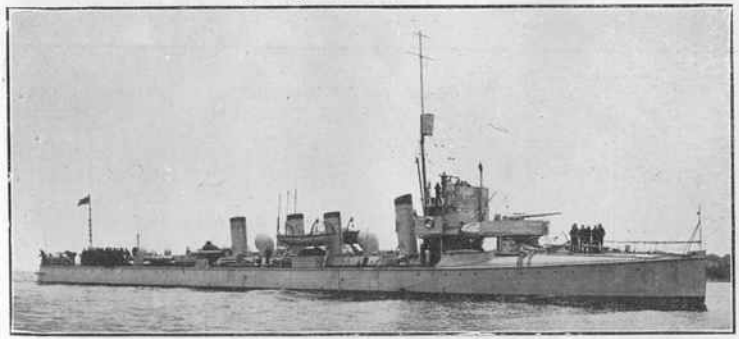




WRANGEL. 1939, *courtesy Swedish Navy League, "Sveriges Flotta."*

2 *Wrangel* class: ***Wrangel*** and ***Wachtmeister*** (Lindholmens Verkstad, Göteborg, both 1917). 465 tons. Dimensions: 232½ × 22 × 9½ feet. Armament: 4—3 inch, 1—25 mm. A.A., 2 M.G., and 4—18 inch torpedo tubes (paired). Machinery: De Laval geared turbines. Designed S.H.P.: 11,000 (*n.d.*), 13,000 (*f.d.*) = 34 kts. Reported to have attained 34·8 kts. on trials. Boilers: 4 Yarrow. Oil: 103·5 tons. Complement: 81. Completed early 1918. Pendant numbers are 9 and 10, respectively.

6 Hugin and Wale classes.



VIDAR. 1928, *Registrator Ossi Janson.*

2 *Hugin* class: ***Hugin*** (1911), ***Munin*** (1912), 360 tons. Dimensions: 215½ × 20¾ × 8½ feet. Guns: 4—3 inch, 2 machine. Torpedo tubes: 4—18 inch. Machinery: A.E.G. Vulcan turbines. S.H.P.: 10,000 = 31 kts. Boilers: 4 Yarrow. Fuel: 90 tons coal + 14 tons oil. Endurance: 800 miles at 15 kts. *Hugin* built by Götaverken, Göteborg, and *Munin* by Kockums M.V., Malmö. Distinctive numbers: *Hugin* 7, *Munin* 8.

4 *Wale* class:—***Wale*** (1907), ***Ragnar*** (1908), ***Sigurd*** (1908), ***Vidar*** (1909). 360 tons. Dimensions: 215½ × 20¾ × 9 feet. Armament: *Wale*, 2—3 inch, 4—6 pdr., 2 machine; other boats, 4—3 inch, 2 machine; 4—18 inch tubes in all. S.H.P.: 8,000 = 30·5 kts. 4 Yarrow boilers. Coal: 84 tons. Radius of action: 920 miles at 15 kts. *Sigurd* built by Lindholmens Verkstad, Göteborg, other 3 by Kockums M.V., Malmö. Hull on Thornycroft lines. Distinctive numbers: *Wale*, 3; *Vidar*, 4; *Ragnar*, 5; *Sigurd*, 6. Only *Munin* and *Vidar* have charthouse on bridge.

Submarines (*Ubåtar*). (a) Sea-going Types.

Note.—In 1941 it is proposed to lay down additional submarine tonnage.

SJÖLEJONET. 1939, *Official.*

6 *Sjölejonet* class: ***Sjölejonet*** (July 25, 1936), ***Sjöhunden*** (Nov. 26, 1938), ***Sjöbjörnen*** (Jan. 15, 1938); UB 1—3 (ordered 1939). All by Kockums Mek. Verkstad A/B., Malmö. Displacement: 580/760 tons. Dimensions: 204 × 20½ × 11 feet. Guns: 2—40 mm., 2 M.G. AA. Tubes: 6—21 inch (3 bow, 1 stern and 2 deck aft). Fitted for minelaying. B.H.P.: 3,000/—— = 15/10 kts. Complement: 32.

DELFINEN. 1936, *courtesy Swedish Navy League, "Sveriges Flotta."*

3 *Delfinen* class: ***Delfinen*** (Dec. 20, 1934), ***Nordkaparen*** (Feb. 9, 1935), ***Springaren*** (April 27, 1935). All built by Kockums M.V., Malmö. Displacement: 540/720 tons. Dimensions: 199 × 20½ × 11 feet. Guns: 1—4·1 inch, 1—57 mm. AA. Tubes: 4—21 inch (3 bow, 1 stern). Fitted for minelaying. Speed: 15/10 kts. Complement: 28.

DRAKEN. 1929 *Photo.*

3 *Draken* class: ***Draken*** (1926), ***Gripen*** (1928), ***Ulven*** (1930), all Karlskrona D.Y. Displacement: 667/850 tons. Dimensions: 213¼ × 21 × 11½ feet. Armament: 1—3 inch AA., 1—25 mm. AA., 4—21 inch tubes. H.P.: 2,800/—— = 15/9 kts. Radius: 5,600 miles at 10 kts. *surface*. Complement: 32.

1937, *Registrator Ossi Jansson.*

Valen (May 6, 1925), built at Karlskrona Naval Dockyard. Fitted for laying mines on the Normand-Fenaux system. Displacement: 501/730 tons Dimensions: 186 × 23½ × 10 feet. Guns: 1—3 inch, 1—25 mm. AA. Tubes: 4—21 inch. B.H.P.: 2,800 = 15/9 kts. Complement: 28.

(b) Coastal Types.

U1, ***U2***. Ordered 1939 from Kockums Mek. Verkstad. A/B., Malmö and Stockholm Naval dockyard respectively. Displacement: 350/—— tons. Tubes: 4—21 inch

UTTERN. 1930, *courtesy Swedish Navy League, "Sveriges Flotta."*

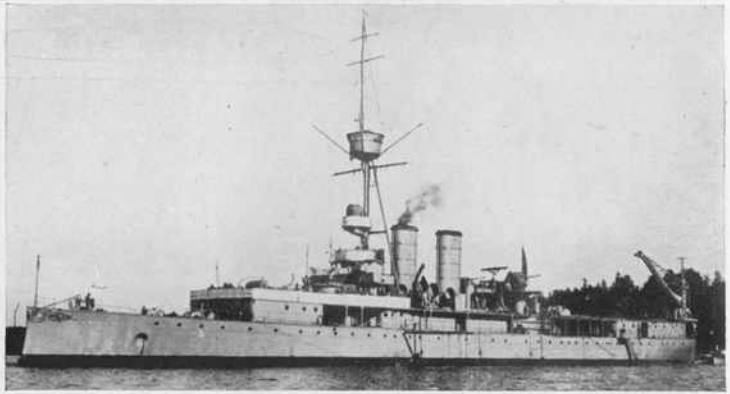
3 *Bävern* class: ***Bävern,*** built by Kockums M.V., Malmo, ***Illern*** (1921), ***Uttern*** (1922), by Karlskrona Naval Dockyard. Displacement: 420/640 tons. Dimensions: 185 × 18½ × 10 feet. H.P.: 2,800 = 15 kts, *on surface*; 9 kts. *submerged*. Guns: 1—6 pdr. A.A., 1 M.G. Tubes: 4—21 inch (bow). 8 torpedoes carried. Radius 3,000 miles at 15 kts. *surface*, 54 miles at 6 kts. *submerged*. Complement: 28.

HAJEN. 1924. *Official Photo.*

3 *Hajen* class: ***Hajen*** (1917), ***Sälen*** (1918), ***Valrossen*** (1918), built by Kockums M.V., Malmö. Displacement: 392/600 tons. Dimensions: 171 × 16½ × 11½ feet. Guns: 1—6 pdr. AA. Tubes: 4—18 inch. H.P. 2,800/—— = 15/9 kts. Complement: 26.

Distinctive letters, painted on C.T., are: Bv, *Bävern*; De, *Delfinen*; Dk, *Draken*; Gr., *Gripen*; Hj, *Hajen*; In, *Illern*; Nd, *Nordkaparen*; Sä, *Sälen*; Sb, *Sjöbjörnen*; Sh, *Sjöhunden*; Sj, *Sjölejonet*; Sp, *Springaren*; Ut, *Uttern*; Uv, *Ulven*; Va, *Valen*; Wa, *Valrossen*.

Aircraft Depot Ship (*Flygmoderfartyg*).



1936, *Miss Hjördis Karlsson.*

DRISTIGHETEN (Lindholmens Verkstad, Göteborg, 1900). Displacement: 3,270 tons. Dimensions: 285 × 48½ × 17 feet. Guns: 4—3 inch AA., 2—25 mm. AA., 4 M.G. AA. H.P.: 5,000 = 16 kts. Coal: 310 tons. Ex-coast defence ship, converted into an Aircraft Tender and Depot Ship in 1930. Carries 3 aircraft, and is fitted for minelaying.

Minelayer (*Minkryssare*)

Reconstructed, 1939—40. Lengthened 20 feet and completely modernised.

CLAS FLEMING (1914). Displacement: 1,570 tons. Complement: 175. Dimensions: 263 × 34 × 14 feet. (Being lengthened 20 feet.) Guns: 4—4·7 inch, 50 cal., 4 M.G. Machinery: Diesel-turbine installation by Götaverken.

6 Motor Torpedo Boats. (*Motortorpedbåtar*)

T 3 1940, *courtesy "Sveriges Flotta."*

T 3, T 4 (1939), by Vosper, Ltd., Portsmouth. Displacement: 24 tons. Length: 60 feet. Tubes: **2**—18 inch. Machinery: 2 Isotta-Fraschini motors. H.P.: 2,300 = 41 kts. continuous sea speed. Complement: 6.

For photo see Addenda.

T 11, T 12, T 13, T 14. Italian M.A.S. type acquired 1940. Displacement: 20 tons. Tubes: **2**—18 inch. Machinery: 2 Isotta-Fraschini motors B.H.P. 2,000 = 47 kts. *max.*

5 Coastal Torpedo Boats. (*2 kl. torpedbatar*)

Nos. 5, 6, 7, 8, 9, (1906-08). Displacement, 50 tons. Dimensions: 106 × 12¼ × 6½ feet. Armament: **1**—1 pdr., **2**—18 inch tubes. H.P. 800 = 21 kts. Coal: 11 tons. Complement, 14.

Patrol Boats (*Vedettbåtar*).

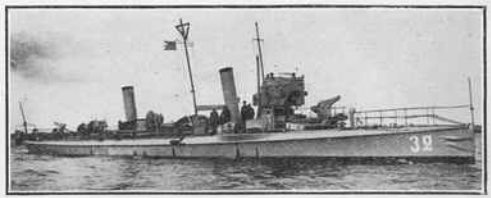
KAPAREN 1935, *Official.*

4 boats. **JÄGAREN** (Dec., 1932), **KAPAREN** (March 3, 1933), **SNAPPHANEN** (Nov. 2, 1933), **VÄKTAREN** (April 25, 1934). All built at Karlskrona. Displacement: 287 tons. Complement, 37. Dimensions: 177 × 19½ × 8¾ feet. Guns: **2**—3 inch, **2**—25 mm. AA. **2** D.C.T. Machinery: De Laval geared turbines. S.H.P.: 3,600 = 24 kts. Vanson boilers. Oil fuel: 50 tons. Identification Nos. 21 to 24, respectively.

PERSEUS. 1930, *courtesy Swedish Navy League, "Sveriges Flotta."*

16 ex-Torpedo boats, **VEGA, VESTA, POLARIS, PERSEUS, REGULUS, RIGEL, ANTARES, ARCTURUS ALTAIR, ARGO, CASTOR, POLLUX, IRIS, THETIS, ASTREA, SPICA** (1908–1910). Displacement: 105 tons. Dimensions: 127 × 14½ × 9 feet. Guns: **1** or **2**—57 mm. **1**—18 inch torpedo tube. H.P.: 2,000 = 25 kts. All built by Karlskrona D.Y., Bergsunds Verkstad, Stockholm, or Götaverken, Göteborg, to designs of Ch. & At. Augustin Normand, Le Havre. Identification Nos. 39 to 54.

Patrol Boats—*continued.*



No. 32. (Since scrapped). 1928, *Registrator Ossi Janson.*

7 boats. **Nos.** 27 (ex-*Blixt*), **28** (ex-*Meteor*), **30** (ex-*Orkan*), **33** (ex-*Virgo*), **34** (ex-*Mira*), **35** (ex-*Orion*), **36** (ex-*Sirius*), by Karlskrona D.Y. and Bergsunds Verkstad, (1898–1903). 90 tons. H.P.: 1,300 = 23 kts. Fuel: 13–20 tons. Guns: **2**—1 pdr., **1**—15 inch tube. Complement: 15–18. All are ex-Torpedo boats. Mostly laid up in dockyards.

Fishery Patrol Vessel (*Fiskebevakningsfartyg*).

SVENSKSUND. 1936 *Registrator Ossi Janson.*

SVENSKSUND (1891). 360 tons. Guns: **2**—6 pdr. H.P. 400 = 12½ kts. Coal: 50 tons. Officially rated as a Gunboat (*Kanonbat*).

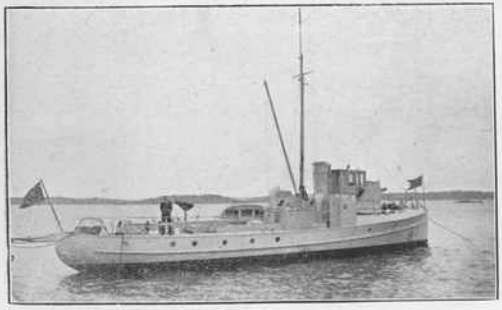
SWEDEN — Miscellaneous

Tenders (rated as *Vedattbåtar*)

(Two new 67½ feet Tenders with Diesel engines are building at Kalmar, and six of 50 tons, dimensions: 88½ × 17¾ × 4½ feet, have been ordered.)

SÖKAREN. 1939, *Registrator Ossi Janson.*

SÖKAREN, SVEPAREN, SPRÄNGAREN (1918, Motala Co.). 160 tons. Dimensions: 85·3 × 23 × 9·8 feet. H.P. 400 = 11 kts. Guns: 1—6 pdr. Complement: 18. Identification Nos. are 16, 17, 18, respectively, which have been painted on bows.

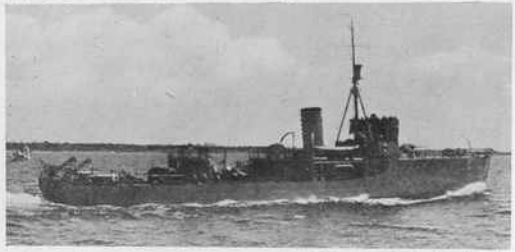


No. 19. 1926 *Photo, by courtesy of the Ministry of Defence.*

No. 19 (1914). 55 tons. Guns: 1—1 pdr., 1 M.G. Speed: 10 kts. (oil motor). Used as an Aircraft Tender.

Minesweepers (*Minsvepare*)

Note.—24 more minesweepers of a smaller type are under construction.



ARHOLMA. 1939, *courtesy "Sveriges Flotta."*

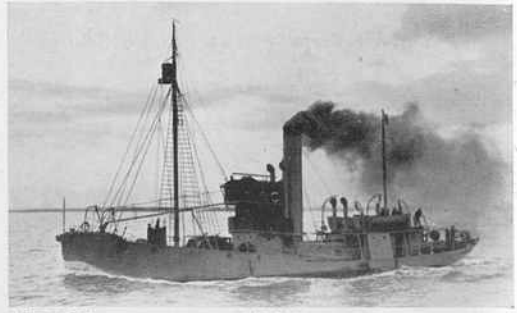
ARHOLMA (April 27, 1937), **LANDSORT** (Nov. 26, 1937). Both built at Karlskrona. **HOLMÖN** (Eriksberg, Göteborg, Sept. 5, 1940), **KULLEN** (Landskrona, Oct. 29, 1940), **RAMSKAER** (Göteborg, Oct. 28, 1940), another (Stockholm, Oct. 30, 1940), and 8 more (building). Displacement: 375 tons *standard*, 442 tons *full load*. Complement: 37. Dimensions: 180¾ (*w.l.*), 186 (*o.a.*) × 24¾ × 7 feet *max.* Guns: 2—3 inch, 1—25 mm. AA., 2 D.C.T. Machinery: De Laval geared turbines. S.H.P.: 3,200 = 19 kts. Oil fuel: 60 tons.

MINESWEEPER 1. 1938, *Official.*

Nos. 1 and **2** (Ekensberg Varv, Stockholm, 1936). Displacement: 61 tons *standard*, 64 tons *full load*. Complement, 11. Dimensions: 97¾ (*w.l.*), 100¾ (*o.a.*) × 14 × 3½ feet *max.* Guns: 2—8 mm. AA. Machinery: Diesels. B.H.P. 600 = 16 kts. Fuel: 3 tons.

Note.—Completed in February and May, 1938, respectively.

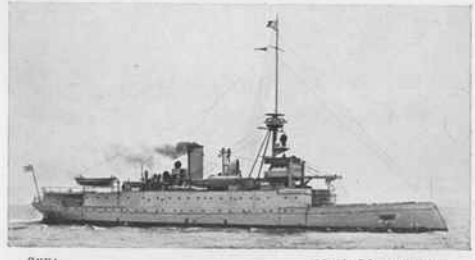
Minesweepers—*continued.*



STYRBJÖRN. *Added 1936, courtesy "Sveriges Flotta."*

STARKODDER (ex-*Graham*, 1925), **STYRBJÖRN** (ex-*Klo*, 1923). Ex-whalers, built in Norway, purchased in 1935. Displacement: 375 and 350 tons, respectively. Dimensions: 99¾ × 23 × 14 feet, and 104 × 22 × 14 feet, respectively. Guns: 1—37 mm. Machinery: Reciprocating. I.H.P.: 750 = 15 kts.

Depot Ships

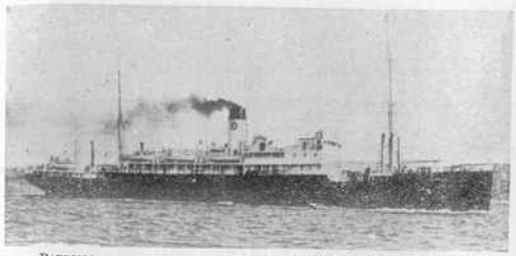


SVEA. 1933 *Photo, Official.*

SVEA. Old Coast Defence Battleship built by Lindholmen Co., 1886, re-built 1904 and 1921. 2,840 tons. Dimensions: 248·4 × 48·5 × 16·4 feet. Guns: 2—6 pdr. (*A.A.*), 2 M.G. Armour: 11¾″–8″ Belt, 2″ Decks. 2 screws. 6 cyl. boilers. I.H.P.: 4,650 = 15 kts. Coal: 220 tons. Fitted as a depot ship for Submarines.

Note.—Old coast defence ships *Niord* and *Göta*, also serving as depot ships, are no longer illustrated here, as they are purely harbour service vessels.

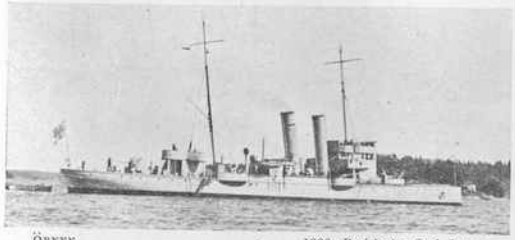
Depot Ships—*continued.*



PATRICIA — *Added* 1940, *courtesy Svenska Lloyd.*

PATRICIA (ex-*Patria II*), (Swan, Hunter, 1926). Acquired in 1940. 3,994 tons *gross*. Dimensions: 345 × 47½ × 20 feet. Machinery: Triple expansion. I.H.P.: 2,450 = 14 kts. 2 boilers. Oil fuel.

JACOB BAGGE. — 1936, *Registrator Ossi Janson.*

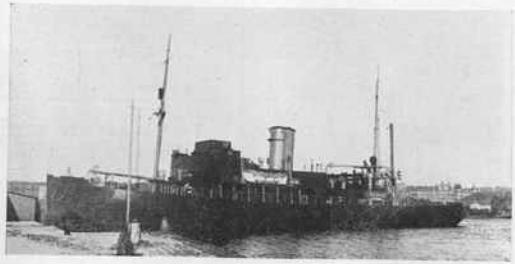


ÖRNEN. — 1936, *Registrator Ossi Janson.*

JACOB BAGGE (1898), **ÖRNEN** (1896), Displacement: 750 tons. Dimensions: 220 × 27 × 9 feet. Machinery: Triple expansion. Designed H.P. 4,000 = 20 kts. Coal: 100 tons. Guns: 2—4·7 inch, 4—6 pdr.

General Notes.—To distinguish between these ships compare relative positions of foremast, bridges, and fore funnel. *Örnen* has cut-away stern and mainmast. Both employed as Depot and Training Ships, though officially rated as *Torpedkryssare.*

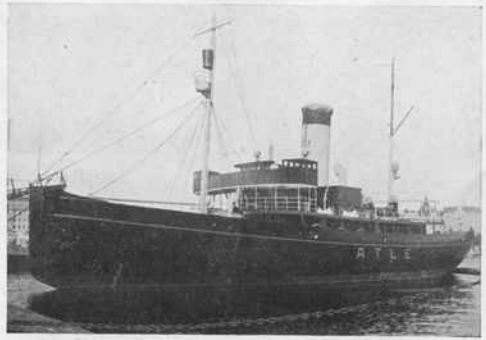
Ice Breakers (*Isbrytarfartyg*)



1938 *Registrator Ossi Janson.*

YMER (1933). Built by Kockums M.V.A/B., Malmö. Displacement: 3,465 tons (4,350 tons *full load*). Dimensions: 246 (*pp.*), 257 (*o.a.*) × 63½ × 21 feet. Guns: 4—3 inch AA., 4—25 mm. AA. Machinery: 6 Atlas Diesels driving electric generators. H.P.: 9,000 = 16·5 kts. Complement: 44.

Note.—*Ymer* was first large icebreaker to be given Diesel electric propulsion.



1933, *Registrator Ossi Janson.*

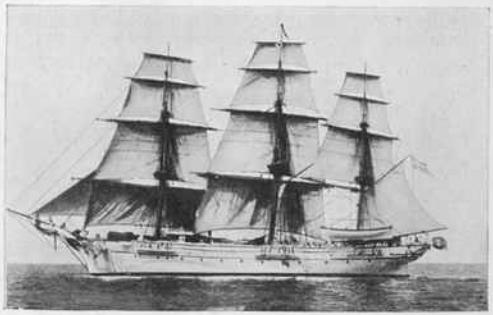
ATLE (1926). Displacement: 1,750 tons. Dimensions: 194½ (*pp.*), 207 (*o.a.*) × 55½ × 20½ feet. Guns: 4—57 mm. AA., 4 M.G. H.P.: 4,000 = 16 kts. Complement: 44.

Oilers. (*Tankfartyg*)

1933 *Registrator Ossi Janson.*

BRÄNNAREN (1933). Built by Kockums M.V.A/B., Malmö. Displacement: 1,082 tons. Dimensions: 165 (*pp.*), 173 (*o.a.*) × 29 × 12 feet. Machinery: Atlas Diesels. H.P.: 500 = 10 kts.

Training Ships (*Övningsfartyg*).



1930, *courtesy Swedish Navy League, "Sveriges Flotta."*

NAJADEN (1897). }
JARRAMAS (1900). } 750 tons.

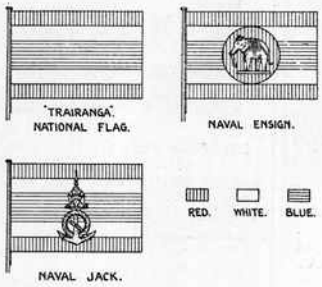
Mining Tenders.

(Manned by Coast Artillery personnel.)

No. 1 (1937). 200 tons.
No. 9 (1912). 120 tons. 9 kts.
Nos. 7, 8 (1904–5). 109 tons. 7·5 kts.
Nos. 5, 6 (1885–93). 108 tons. 6·5 kts.
No. 3 (1879). 99 tons. 6·5 kts.

ROYAL THAIAN NAVY.

Flags.



ADMIRAL OF THE FLEET'S FLAG.—A blue flag with a white elephant, and in the upper canton next the staff two yellow anchors crossed surmounted by the Thai crown.

ADMIRAL'S FLAG.—A blue flag with a white elephant in the centre.

VICE ADMIRAL'S FLAG.—The same as the Admiral's flag but with a white "Chakra" in the upper canton next the staff.

REAR ADMIRAL'S FLAG.—The same as the Admiral's flag but with two white "Chakras" near the staff.

Personnel: 4726. Officers: 352.

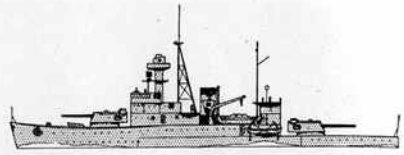
Minister of Defence: Colonel Luang Bipul.

Commander-in-Chief of Navy: Eng. Captain Phya Vicharn Chakrakich.

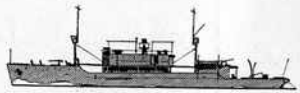
Mercantile Marine.

14 steamers of 9,186 tons gross (Bureau Veritas figures).

SUKHODAYA. RATANAKOSINDRA.

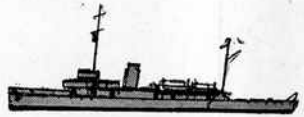


AYUTHIA, DHONBURI.



NOS. 1 and 2.

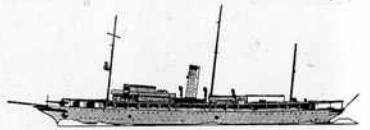
MEKLONG, TACHIN.



CHAO PHYA.

PHRA RUANG.

KANTAN *class.*



ANGTHONG.

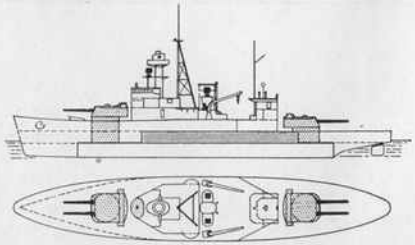
MACHANU *class.*

TRAD *class.*

Cruisers.

Two Cruisers were laid down by the Cantieri Riuniti dell' Adriatico, Trieste, on Aug. 26 and Sept. 25, 1939, respectively (first date being somewhat doubtful). One is believed to have been launched in October, 1940. Displacement reported as 4,200 tons. Dimensions: 482¼ × 47 × 13¾ feet. Guns: **6**—6 inch, **6**—3 inch AA., **10** M.G. Torpedo Tubes: **6**—18 inch. Geared turbines. S.H.P.: 45,000 = 30 kts.

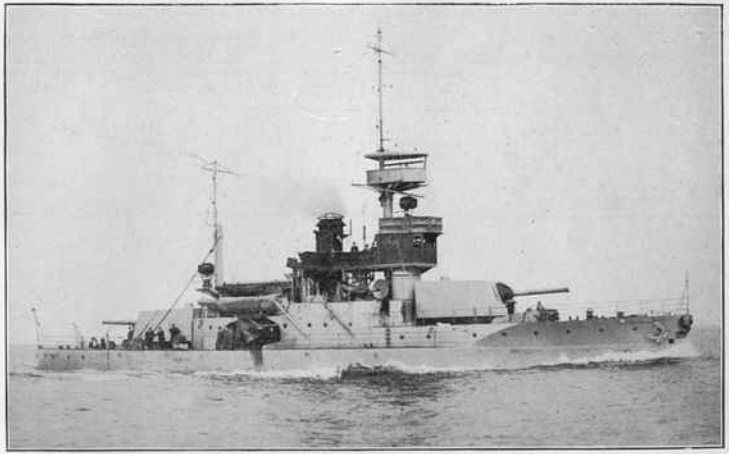
DHONBURI 1938.



AYUTHIA (July 21, 1937), **DHONBURI** (Jan. 31, 1938). Both laid down by Kawasaki Co., Kobe, in 1936. Displacement: 2,265 tons. Dimensions: 252⅜ × 47¼ × 13¾ feet. Guns: **4**—8 inch, **4**—3 inch AA., **4**—20 mm. AA. Machinery: 2 sets M.A.N. Diesels. 2 shafts. B.H.P.: 5,200 = 16·5 kts. Fuel: 150 tons. Complement: 155.

Note.—Apparently these ships are an expansion of *Ratanakosindra* design.

SUKHODAYA. 1930 *Photo, by courtesy of Messrs. Vickers-Armstrongs.*



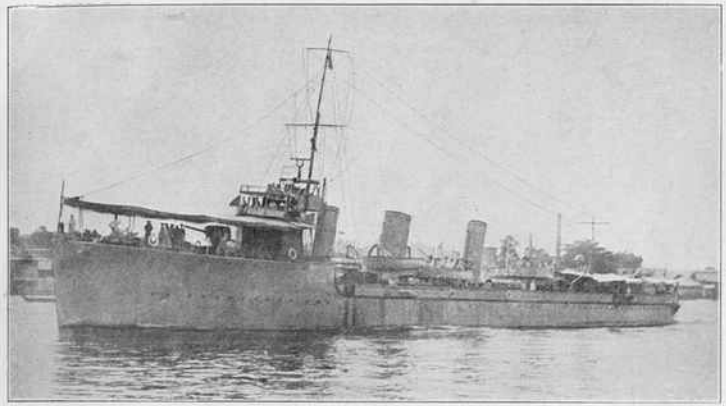
RATANAKOSINDRA. 1926 *Photo, by courtesy of Messrs. Armstrongs.*

SUKHODAYA (Vickers Armstrongs, Nov. 19, 1929).

RATANAKOSINDRA (Armstrong, April 21, 1925). 1000 tons. 166 (*p.p.*), 173 (*o.a.*) × 37 × 10¾ feet. Guns: **2**—6 inch, **4**—3 inch AA. Protection: Side 2½″ (amidships), 1½″ ends, nickel steel. Barbette rings, 2½″ nickel steel. C.T. 4¾″ cast steel armour. Upper deck, ¾″ to 1½″ high tensile steel. 2 screws. Vertical triple expansion engines. H.P. 850 = 12 kts. 2 oil-burning water-tube boilers, working pressure 225 lb. Oil: 102 and 96 tons respectively. Complement: 103.

Ratanakosindra laid down 29th Sept., 1924, and completed August, 1925. *Sukhodaya* completed 1930.

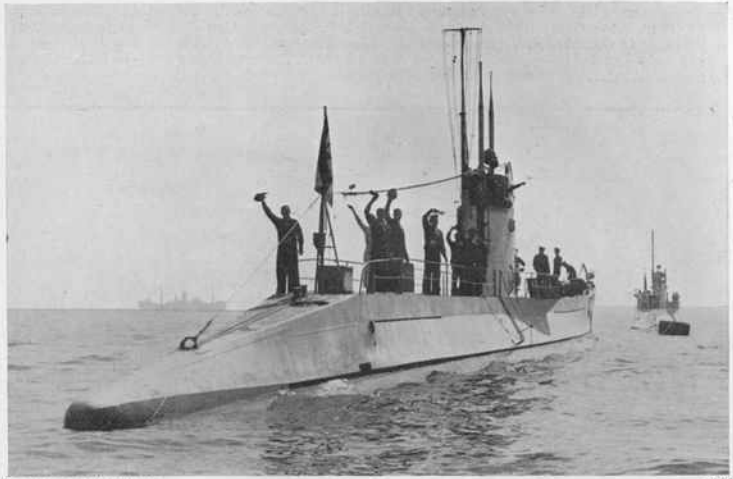
Destroyer.



PHRA RUANG — 1921 *Photo, by courtesy of J. Bailey, Esq.*

Phra Ruang (ex-British *Radiant*, launched by Thornycrofts, Nov., 1917. Purchased during July, 1920). 1,035 tons. Dimensions: 274 (*o.a.*), 265 (*p.p.*), × 27½ × 11 feet (*max.* draught) and 8½ feet (*mean*). Guns: 3—4 inch, 1—3 inch AA., 2—20 mm., 1 M.G. Tubes: 4—21 inch, in two twin deck mountings. Machinery: Brown-Curtis (all geared) turbines. Designed S.H.P.: 29,000 = 35 kts. (39·67 trials). 3 Yarrow boilers. Oil fuel: *about* 285 tons (*max.*). Complement, 100.

Submarines.



BLAJUNBOL, SINSAMUDAR. — 1938.

4 *Mitubisi* type: ***Machanu, Vilun*** (both Dec. 24, 1936), ***Blajunbol, Sinsamudar*** (both May 14, 1937). *Standard* displacement: 370 tons. Dimensions: 167¼ × 13½ × 12 feet. Armament: 5—21 inch tubes, 1 M.G. H.P.: 1,000/540 = 14·5/8 kts. Fuel: 27 tons. Complement: 24.

Notes.—First pair laid down on April 6, 1936, second pair Oct. 1, 1936. 4 more are projected.

Torpedo Boats.

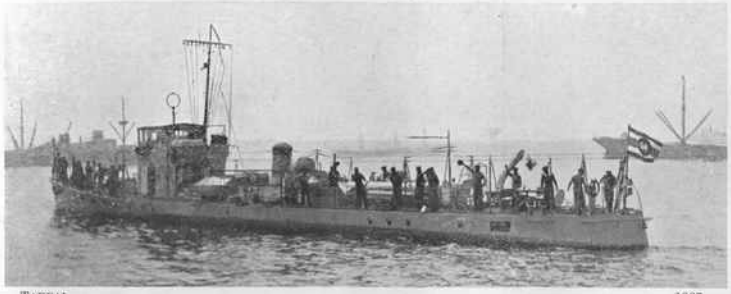
PUKET. — 1936.

TRAD. — 1936, *courtesy Commander R. Steen Steensen.*

9 *Adriatico* type: ***Trad*** (No. 11) (Oct. 26, 1935), ***Puket*** (No. 12) (Sept. 28, 1935), ***Patani*** (No. 13) (Oct. 16, 1936), ***Surasdra*** (No. 21) (Nov. 28, 1936), ***Chandraburi*** (No. 22) (Dec. 16, 1936), ***Rayong*** (No. 23) (Jan. 11, 1937), ***Chunphorn*** (No. 31) (Jan. 18, 1937), ***Cholburi*** (No. 32) (Feb. 10, 1937), ***Songkla*** (No. 33) (Feb. 9, 1937). *Standard* displacement: 318 tons (470 tons *full load*). Dimensions: 219 (*pp.*), 223 (*o.a.*) × 21 × 7 feet *max.* draught. Armament: 3—3 inch AA., 2—20 mm. AA., 4—8 mm., 6—18 inch tubes (2 single, 4 paired). Parsons geared turbines. 2 shafts. H.P.: 9,000 = 31 kts. Boilers: Yarrow. Fuel: 102 tons. Radius: 1,700 miles at 15 kts. Complement: 70.

Notes.—First 2 laid down Feb. 8, 1935 by Cantieri Navali Riuniti dell'Adriatico, Monfalcone, for delivery by end of 1935. Armament supplied by Vickers-Armstrongs, Ltd. First boat reached 32·54 kts. on trials with 10,000 H.P. All delivered by summer of 1937.

Coastal Torpedo Boats.



TAKBAI. 1937.

KANTAN (No. 7), **KLONGYAI** (No. 5), **TAKBAI** (No. 6) (Isikawazima Co., March 26, 1937). Displacement: 110 tons *standard*, 135 tons *full load*. Complement: 25. Dimensions: 131½ × 15½ × 4 feet. Guns: 1—3 inch, 2—20 mm. Tubes: 2—18 inch. Machinery: Geared turbines. 2 shafts. S.H.P.: 1,000 = 19 kts. 2 water tube boilers. Oil fuel: 18 tons.

Notes.—Above 3 completed June 21, 1937. 2 more projected.

Motor Torpedo Boats.

Added 1938, *courtesy Messrs. Thornycroft.*

4 *Thornycroft* type: Nos. **6** to **9** (1935). 16 tons. B.H.P. 950=40 kts. 2 M.G., 2 torpedoes, 2 D.C.
4 *Thornycroft* type: Nos. **2** to **5** (1922). 11 tons. 55 × 11 feet. B.H.P.: 750 = 37 kts. (40 kts. *extreme*). Petrol carried: 300 gallons *normal*, 500 *max.* 4 Lewis guns, 2 torpedoes, 2 D.C. Complement, 5.

Sloops (Training Ships).

MEKLONG. 1937.

TACHIN. 1937.

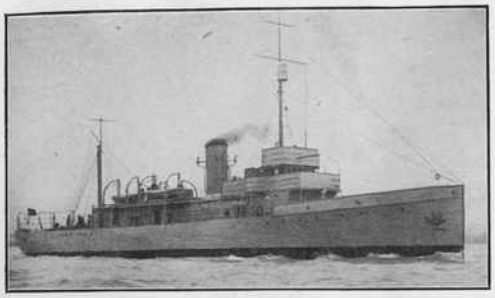
TACHIN (July 24, 1936), **MEKLONG** (Nov. 27, 1936), both by Uraga Dock Co. Displacement: 1,400 tons. Dimensions: 269 × 34½ × 10½ feet (*mean*). Guns: 4—4.7 inch, 2—20 mm. AA. Tubes: 4—21 inch (paired). Machinery: Triple expansion. 2 shafts. I.H.P.: 2,500 = 17 kts. Boilers: 2 water-tube. Oil fuel: 487 tons. Fitted for minesweeping. Complement (as training ships), 155.

Note.—Both delivered in June, 1937.

Despatch Vessel.

SAMET (ex-*Pi-Sua-Nam.*) Displacement: 165 tons. Dimensions: 100 × 20 × 8½ (*mean* draught) feet. H.P.: 210 = 9½ kts. Complement: 25.

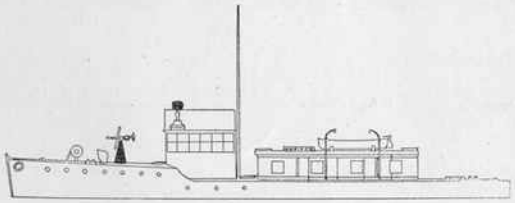
Training Ship.



CHAO PHYA. 1924 *Photo, by courtesy of Messrs. Thornycroft.*

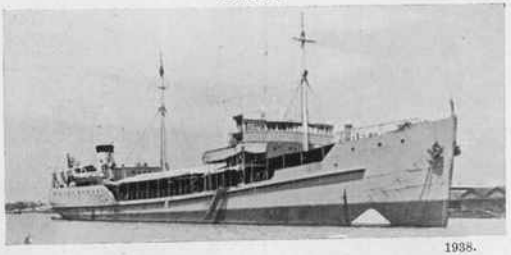
CHAO PHYA (ex-British Twin Screw Minesweeper *Harvant*, built by Eltringhams, S. Shields, Nov., 1918, purchased 1923 and reconstructed by Messrs. Thornycroft). Displacement, 710 tons. Dimensions: 220 × 28½ × 7½ feet. Machinery: Vertical triple expansion. Boilers: Yarrow, converted to burn oil. I.H.P. 2200 = 16 kts. Oil: 160 tons. Complement, 65.

Fishery Protection Vessels.



3 built in Royal Dockyard, Bangkok, 1936. (A fourth projected.) Displacement: 50 tons. Dimensions: 72 × 13 × 3½ feet. Guns: 1—37 mm. Machinery: Diesel. 2 shafts. B.H.P.: 150 = 9 kts. Fuel: 5 tons.

Oilers.



1938.

SUMUI (Hakodate Dock Co., April 18, 1936), and another projected. Displacement: 1,854 tons *standard*. Dimensions: 240 × 39 × feet. 2 Sulzer Diesel engines. B.H.P. 2,141 = 12 kts.

Minelayers.

1936.

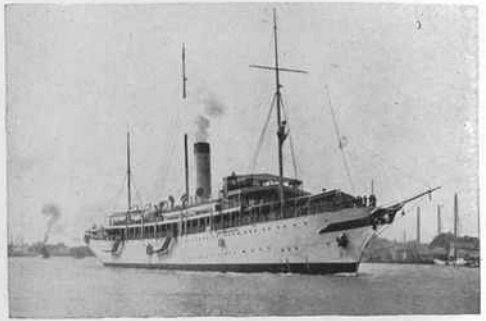
BANGRADIAN (No. 1), (1936), **NONSARAI** (No. 2), (July 22, 1936). Cant. Nav. Riuniti dell' Adriatico, Monfalcone. (A third vessel reported building at Cant. Nav. Riuniti, Ancona.) Displacement: 368 tons *standard*, 408 tons *full load*. Complement: 55. Length: Under 200 feet. Guns: 2—3 inch AA. Diesel engines of Burmeister & Wain type. Speed: 12 kts.

Transports.

1938.

PANGAN, SICHANG (Harima Co., Japan, Nov. 10, 1937). Displacement: 650 tons. Machinery: Diesel. Other details wanted. Completed in January, 1938.

Transports—*continued.*



1919 *Photo, J. Bailey, Esq.*

ANGTHONG (ex-*Maha Chakri*), (Kawasaki Co., Kobé, Japan, 1918). Displacement: 2,760 tons. Complement: 199. Length: 298 feet (*w.l.*), 335 feet (*o.a.*). Beam: 40 feet. Draught: — feet. Guns: Not known. Machinery (*see Notes*): 2 sets triple exp. 2 shafts. I.H.P.: *about* 3,400 = 15 kts. Boilers: 4 Kanpon, coal and oil burning. Oil fuel: 200 tons = 2,000 miles endurance.

Notes.—The hull of the old Royal Yacht *Maha Chakri* was sold to the Kawasaki Co. in 1917, but the engines and other fittings were removed, overhauled and renovated for installation in the above ship, which is now rated as a transport, and used also as Depot Ship for Submarines.

1921 *Photo, J. Bailey, Esq.*

CHANG (ex-*Vides Kichkar*, ex-*Buk*, ex-*Lycidas*, Ritson & Co., Maryport, 1902). 850 tons. 176 × 27½ × 10 feet. H.P.: 780 = 9 to 10 kts.

CUONG (ex-*Pra-Yom*). Displacement: 190 tons. Dimensions: 110 × 18 × 8 (*mean draught*) feet. H.P.: 225 = 10 kts. Complement: 30.

Also 3 steam lighters, re-named **KRAM, KUT, PAI** (ex-*Chen Thale, Han Thale, Leu Thale*), built by Hongkong and Whampoa Dock Co. in 1902. *About* 160 × 27 × — feet. 440 tons *gross*. I.H.P.: 330 = 8 kts. speed. Used for various purposes, including occasional surveying duties.

TURKISH FLEET.

Flags.

Ensign and Jack.

Pendant

President's Standard.

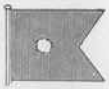
Commander-in-Chief.

Commander of Naval Base.

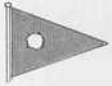
Or Amiral.*

Tüm Amiral.

Tuğ Amiral.


Commodore. †

Senior Officer (At Yardarm)


Senr. Officer (Subordinate)

*(Kor Amiral has three balls.) † Commodore 1st class has 3 balls, if Albay 2, and if Yarbay 1.

Büyük Amiral

Or Amiral

Kor Amiral.

Tüm Amiral.

Tuğ Amiral.

Albay.

Yarbay

Binbaşi.

Yüzbaşi and Ön Yüzbasi

Üstegmen.

Tegmen.

Astegmen.

Admiral of the Fleet	Büyük Amiral
(Non-existent in peacetime)	
Admiral	Or Amiral
Vice-Admiral	Kor Amiral
Rear-Admiral (Senior)	Tüm Amiral
Rear-Admiral (Junior)	Tuğ Amiral
Commodore	Tuğbay
Captain (Senior)	Albay
Captain (Junior)	Yarbay
Commander	Binbaşi
Lieutenant-Commander	Ön Yüzbaşi
Lieutenant	Yüzbaşi
Sub-Lieutenant	Üstegmen
Acting Sub-Lieutenant	Teğmen
Midshipman	Asteğmen

Minister of National Defence: Safvet Arikan
Under-Secretary for Navy: Rear-Admiral Hüsnü Gökdenizer.
Naval Attaché, London: Commander S. Çakir.

Mercantile Marine.

(From "Lloyd's Register," 1939 figures).
185 Vessels of 224,461 gross tonnage.

1 Inönü, 2 Inönü

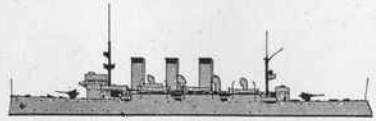
Colour of Ships: Grey.

Kemal Reis *class*

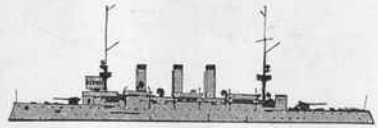
Erkin.

Aydin Reis.

Yavuz.


Mecidiye.

Tinaztepe. Zafer.


Hamidiye.

Adatepe Kocatepe.

Berk, Peyk.

Dumlupinar. Sakarya.

Atilay, Saldiray, Yildiray

Batiray

Gür.

TURKEY—Battle-Cruiser

YAVUZ (ex-German *Goeben*,) (Blohm & Voss, March, 1911).

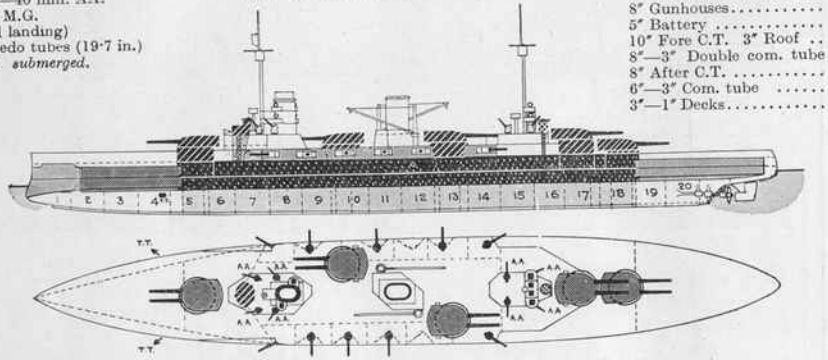
Standard Displacement, 23,100 tons. Complement, 1,300 (as Flagship).

Length (*w.l.*), 610¼ feet. Beam, 96 ft. 10 in. Draught (*max. load*), 26 ft. 11 in.

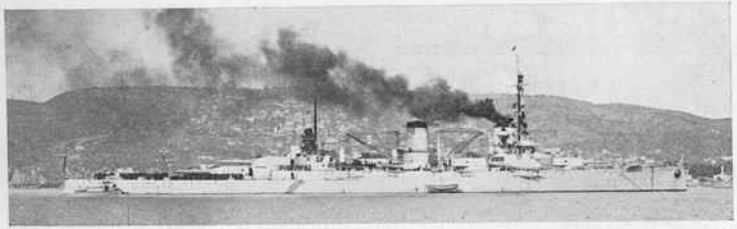
Guns:
10—11 in. 50 cal.
10—5·9 in. 45 cal.
4—3.5 inch A.A.
12—40 mm. AA.
4 M.G.
(1 landing)
Torpedo tubes (19·7 in.)
2 *submerged*.

Anti-Torp. Pro. :—
2″—1″ deep H.T. Steel B.H., between extreme barbettes : Minute internal subdivision.

Armour (Krupp) :
10½″ Belt (amidships) tapers to 6″ at top and 5″ below
3¾″ Belt (bow and stern)
9″—8″ Barbettes .....
8″ Gunhouses.....
5″ Battery .....
10″ Fore C.T. 3″ Roof ..
8″—3″ Double com. tube
8″ After C.T. .....
6″—3″ Com. tube .....
3″—1″ Decks.....

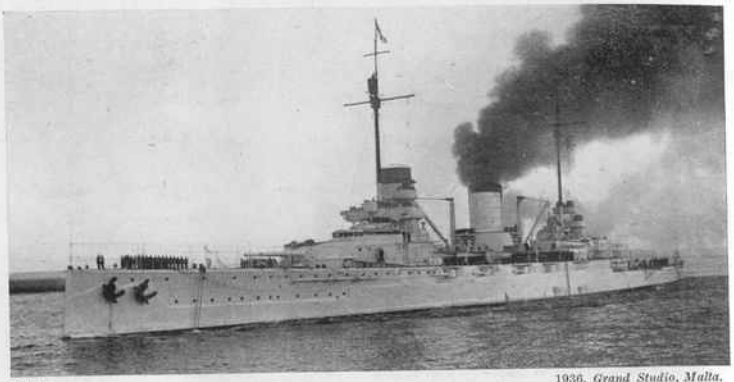


Machinery : Parsons turbine, 4 shaft, direct drive. Boilers : 24 Schulz-Thornycroft (German "Marine Type.") Designed H.P. : nominally 52,000 = 25·5 kts. Coal : *normal* about 1,000 tons ; *maximum* 3,050 tons + 200 tons oil.



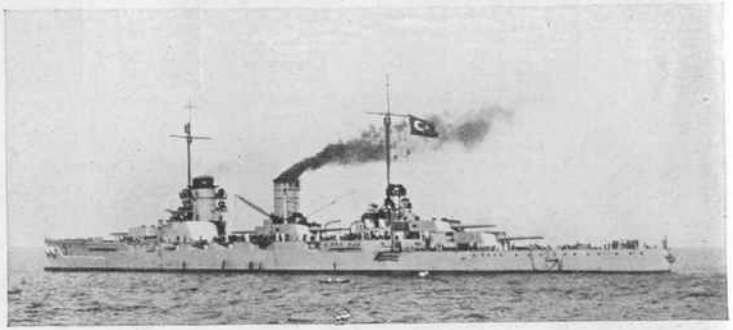
1934 *Photo, Official.*

Engineering Notes.—Endurance is *(a)* 5,350 miles at 10 kts., *(b)* 2,370 miles at a continuous *max.* sea-going speed of 23 kts. She made 26·8 knots on Trials for 6 hours, and 27·1 kts. for 4 hours, on Mar. 17, 1930.



YAVUZ

1936, *Grand Studio, Malta.*



General Notes.—Laid down, August, 1909, by Blohm & Voss, Hamburg, under 1909 German Navy Programme, as a sister to German *Moltke*. Completed, July, 1912. Transferred to the Turkish Navy in 1914, and during the war was twice mined, striking 5 mines in all. A contract was signed in December, 1926, with the Chantiers de St. Nazaire (Penhoët), for the repair and refit of this battle-cruiser at Ismid ; the work was considerably delayed owing to a floating dock proving unequal to her weight and completion was not reached till 1930. She was again refitted in 1938.

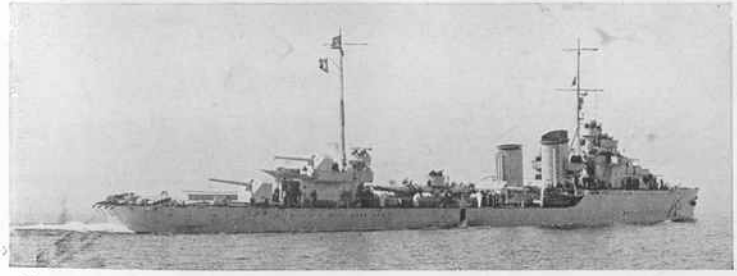
Destroyers. (*Torpedo Muhribi*)

2 *Vickers-Armstrongs*: ***Demirhisar, Sultanhisar.***
2 *Denny*: ***Gayret, Muavenet.***
Displacement: 1,360 tons. Dimensions: 312 (*pp.*), 323 (*o.a.*) × 33 × 8½ feet (*mean*). Guns: **4**—4·7 inch, **6** smaller. Tubes: **8**—21 inch. Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 34,000 = 34·5 kts. Boilers: 3, of 3-drum type, 300 lb. working pressure. Oil fuel: 450 tons. Complement: 150.

Note—All 4 ordered 1939.

ADATEPE. 1932 *Photo, Official.*

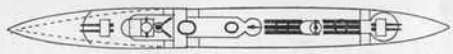
2 *Ansaldo* boats: ***Kocatepe*** (Feb. 7, 1931) and ***Adatepe*** (March 19, 1931). Built at Sestri Ponente,
Displacement: 1,250 tons (*standard*).
1,650 tons (*full load*).
Dimensions: 321½ (*pp.*) 328¾ (*o.a.*) ×30′ ×9′ feet (*mean*).
Guns: **4**—4·7 inch, 50 cal., **2**—40 m/m AA. and **2**—20 mm. AA.
Tubes: **6**—21 inch in triple mountings.
Parsons geared turbines. S.H.P. 40,000=38 kts.
3 Thornycroft boilers with superheaters.
Oil, 360 tons. Complement, 149.
These boats are of Ansaldo design and are named after mountains near Smyrna associated with Turkish military glories.

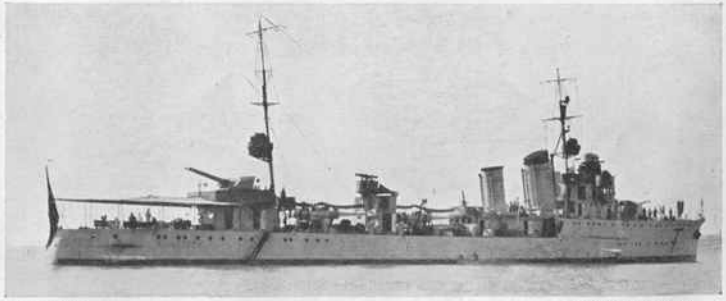


KOCATEPE. 1935.

ZAFER. 1933 *Photo, Official.*

2 *C.N. del Tirreno* boats: ***Tinaztepe*** (July 27, 1931). ***Zafer*** (Sept. 20, 1931). Built at Riva Trigoso.
Displacement: 1,206 tons (*standard*).
1,610 tons (*full load*).
Dimensions: 307 (*pp.*), 315 (*o.a.*) × 30½ × 10¾ feet.
Guns: **4**—4·7 inch, 50 cal., **2**—40 m/m AA., **2**—20 mm. AA.
Tubes: **6**—21 inch in triple mountings.
Parsons geared turbines. S.H.P. 35,000=36 kts.
3 Thornycroft boilers with superheaters.
Oil: 350 tons. Complement, 149.
These boats are of Italian design and generally resemble the Italian "Turbine" class.





TINAZTEPE. 1933 *Photo, Official.*

Submarines.

4 *Vickers-Armstrongs (Barrow)*: ***Burak Reis, Murat Reis, Oruç Reis, Uluç Ali Reis*** (all 1940). Ordered March, 1939. Displacement: 683/856 tons. Dimensions: 193 (*pp.*), 201½ (*o.a.*) × 22¾ × 10½ feet (*mean*), 11⅝ feet (*max.*). Guns: 1—3 inch, 1 M.G. Tubes: 5—21 inch (4 bow, 1 stern). H.P.: 1,550/1,300 = 13·75/9 kts. Fuel: 40 tons.

4 "Ay" Class.

SALDIRAY 1939

3 *Germania* type: ***Atilay*** (May 19, 1939), ***Yildiray*** (Aug. 26, 1939), (both built at Istanbul), ***Saldiray*** (Germania, Kiel, July 23, 1938). All laid down 1937. Displacement: 934/1,210 tons. Dimensions: 262½ × 21 × 14 feet. Guns: 1—4 inch, 1—20 mm. AA. Tubes: 6 (4 bow and 2 stern). 2 sets Burmeister & Wain Diesels. H.P.: 3,500 = 20/9 kts. Diving limit: 55 fathoms. Complement: 44.

1939, *Dr. E. Gröner.*

1 *Germania* minelaying type: ***Batiray*** (Germania, Kiel, March 28, 1939). Displacement: 1,044/1,357 tons. Dimensions: 282 × 22½ × 14 feet. Other details as above, except Complement: 47. 40 mines carried.

1935, *courtesy of Capitán M. Mille.*

1 *German* design: ***Gür*** (Echavarrieta y Larrinaga, Cadiz, 1932). Purchased 1934 and delivered in Jan. 1935. Displacement: 750/960 tons. Dimensions: 237½ × 20½ × 13½ feet. Armament: 1—4 inch, 1—20 mm. AA. guns, 6—21 inch tubes (4 bow, 2 stern). 14 torpedoes carried. 2 sets M.A.N. Diesels. H.P. 2,800/1,000, speed, 20/9 kts. Radius: 6,400 miles at 9½ kts. on *surface;* 1,880 miles at 18½ kts. on *surface;* 101 miles at 4 kts. *submerged.* Diving limit, 44 fathoms. Complement: 42.

Note.—Many of the parts for this submarine were made in the Netherlands.

DUMLUPINAR. 1936, *Grand Studio.*

1 *Bernardis* minelaying type: ***Dumlupinar*** (4 March, 1931). Built by Cantiere Navale Triestino, Monfalcone. Displacement: 920/1,150 tons. Dimensions: 223 × 19 × 14 feet. Armament: 1—4 inch gun, 1 M.G., 6—21 inch tubes (4 bow, 2 stern). 48 mines carried. Machinery: M.A.N. Diesels H.P.: 3,000 = 17·5 kts. *on surface.* Electric motors of 1,400 H.P. = 9 kts. *submerged.* Complement: 47. 40 mines carried.

1 *Bernardis* type: ***Sakarya*** (Cant. Nav. Triestino, Monfalcone, Feb. 2, 1931). Displacement: 610/940 tons. Dimensions: 196 (*p.p.*) × 22½ × 13 feet. Guns: 1—4 inch, 1—20 mm. AA. Tubes: 6—21 inch. M.A.N Diesels. H.P.: 1,600 = 16 kts. *surface.* Electric motors. H.P.: 1,100 = 9·5 kts. *submerged.* Radius: 4,000 miles at 10 kts. Complement: 41.

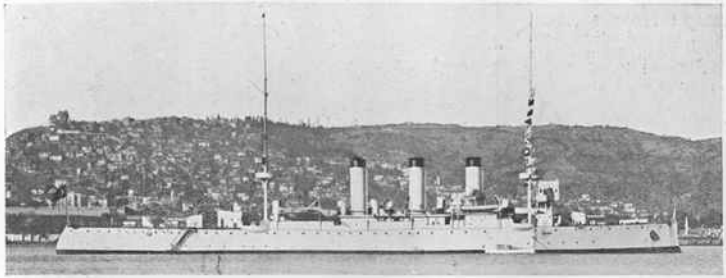
2 Inönü Class.

BIRINCI INÖNÜ 1936, *Grand Studio.*

2 *Fijenoord* type: ***Birinci Inönü*** (February 1, 1927, ***Ikinci Inönü*** (March 12, 1927). Built by Fijenoord Co., Rotterdam. Displacement: 505/620 tons. Dimensions: 192½ × 19 × 11½ feet. 2 sets M.A.N. Diesels. H.P.: 1,100 = 13·5/8·5 kts. Guns: 1—3 inch, 1—20 mm. Tubes: 6—17·7 inch (4 bow, 2 stern). Complement: 29.

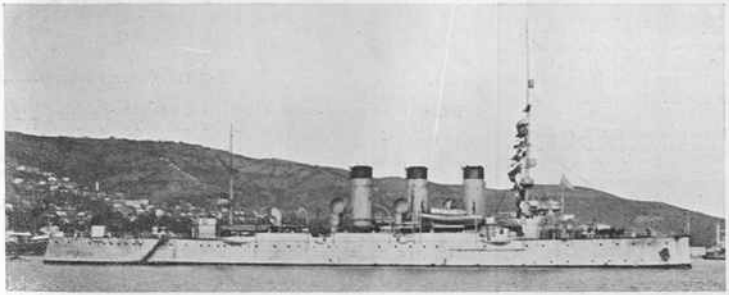
Note.—These two names refer to the first and second Turkish victories gained at Inönü, in Asia Minor.

Old Cruisers (*Muhafazali Kruvazōr*).



1932 *Photo, Official*

HAMIDIYE (ex-*Abdul Hamid*, Armstrong, Sept., 1903). 3830 tons. Complement, 302. Dimensions: 368 × 47½ × 16 feet (*mean* draught). Guns: **2**—5·9 inch, 45 cal. Krupp, **8**—3 inch 50 cal. (Krupp). Armour: 4″ Deck. Machinery: 2 sets 4-cylinder triple expansion. 2 screws. Boilers: Cylindrical. Designed H.P.: 12,000 = 22 kts. (*forced* draught). Present best speed about 16–18 kts. Coal: 750 tons. Endurance: 5,000 miles at 10 kts. At present serves as Training Ship for Naval Cadets, but is fitted for minelaying.

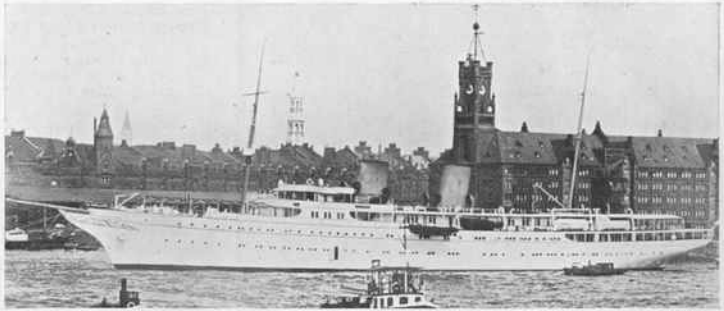


1932 *Photo, Official.*

MECIDIYE (ex-Russian *Prut*, ex-Turkish *Medjidieh*, July 25, 1903). 3,500 tons. Complement: 330. Dimensions: 330 × 42 × 17½ feet (*max.* draught). Guns (as re-armed): **6**—5·1 inch (Vickers), **4**—3 inch, 50 cal. (Schneider), **2** M.G. Deck, 1′. H.P.: 12,000 = about 18 kts. now. Babcock and Wilcox boilers. Coal: 600 tons. Endurance: 4,700 miles at 10 kts. Built by Cramps, Philadelphia. (Refitted and reboilered 1930.)

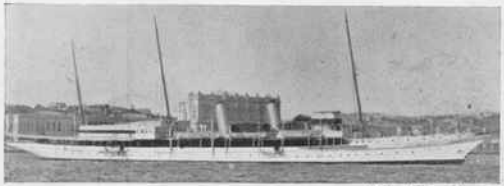
Notes.—Mined and sunk in Black Sea, April, 1915. Salved, repaired and re-fitted at Nikolaieff for Russian Navy, 1915–16. Seized by Austro-German Armies at Sevastopol, 1918, and returned to Turkish Navy.

Yachts.



1938.

SAVARONA (Blohm & Voss, 1931). Displacement: 5,710 tons. Dimensions: 349½ (*w.l.*), 408½ (*o.a.*) × 53 × 20½ feet (*mean*). Guns: **2**—3 pdr. Machinery: 6 geared turbines. 2 shafts. S.H.P.: 10,750 = 21 kts. 4 watertube boilers, 400 lbs. working pressure. Oil fuel. Radius: 9,000 miles at 15 kts. Equipment includes Sperry gyro-stabilisers. Is probably the most sumptuously fitted yacht afloat. Complement: 79.



1937 "*Yavuz.*"

ERTUĞRUL (Armstrong, 1903). 964 tons. Dimensions: 260 (*pp.*) × 27⅔ × 11½ feet. Guns: **8**—3 pdr. Machinery: Triple expansion by Hawthorn Leslie. H.P.: 2,500 = 21 kts. Boilers: Cylindrical.

Note.—Above yachts are not part of Turkish Navy in peace time, but come under Public Works Department.

Motor Torpedo Boats.

DOGAN. 1940, "*Yavuz*."

3 *S.V.A.N.* Type: **DOĞAN, MARTI, DENIZKUŞU.** Built at Venice, 1926. Purchased 1931. 32 tons. Dimensions: 69 × 13¾ × 4 feet. 2—18 inch torpedoes, 1—3 inch gun, 1 M.G., 8 D.C. Machinery: Isotta-Fraschini motors. H.P.: 1,500 = 34 kts. Complement: 10.

Mine Sweepers.

ISA REIS *Added* 1937 "*Yavuz*."

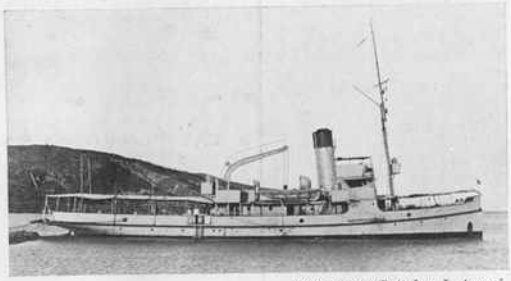
3 *La Seyne* type: **KEMAL REIS** (Feb., 1912), **HIZIR REIS** (Feb., 1912) and **ISA REIS** (Dec., 1911). 413 tons. Dimensions: 154¼ × 25¾ × 4¼ feet. Guns: 3—3 inch., 2—3 pdr., 2 M.G. H.P.: 850 = 14 kts. Refitted, 1923. The 2 forward guns, shown above in sponsons, are now mounted on forecastle in *Isa Reis*.

Minelayers.

SIVRIHISAR (April 10, 1940), **YÜZBASI HAKKI** (1940). Built by John I. Thornycroft & Co., Ltd., Southampton. Displacement: 350 tons (375 tons *full load*). Dimensions: 172 × 26 × 5¾ feet. Guns: 1—3 inch. Mines: **40.** Machinery 2 sets Atlas Polar Diesels. B.H.P.: 1,200 = 15 kts.

Photo wanted.

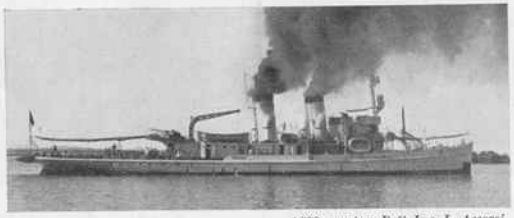
ATAK (Göleük, 1938). Displacement: 500 tons. Dimensions: 144½ × 26¼ × 11¾ feet. H.P.: 1,025 = 13 kts. Carries **80** mines.



1938, *courtesy Dott. Ing. L. Accorsi.*

NUSRET (ex-*Yardim*, ex-*Nusret*, Germania, Kiel, 1912). Displacement: 365 tons. Dimensions: 132 × 22 × 8½ feet. Guns: 2—57 mm. Can carry **25** mines. H.P.: 1,200 = 15 kts.

Note.—This vessel laid the minefield in the Dardanelles on which *H.M.S. Irresistible* and *Ocean*, and the French battleship *Bouvet*, were lost on March 18, 1915.



1938, *courtesy Dott. Ing. L. Accorsi.*

UYANIK (ex-*Intibah*, ex-*Warren Hastings*, Port Glasgow, 1886). Iron. 616 tons *gross*. Dimensions: 202 × 30 × 12 feet. H.P. 1670 = 12 kts. 2 screws. Carries 50 mines.

Note.—Completely refitted in 1933. Originally a Salvage Tug.

Gunboats (*Muhribi*).

PEYK. *Added* 1940, "*Yavuz*."

PEYK. *Added* 1939, *courtesy Dott. Ing. L. Accorsi.*

BERK (ex-*Berkisatvet*) (1907), **PEYK** (ex-*Peykisevket*) (Nov., 1906). Built at Krupps' Germania Yard, Kiel. 775 tons. Dimensions: 262½ × 27⅝ × 9½ feet. Guns: 2—3·9 inch, 4—6 pdr. Designed H.P.: 5,100 = 22 kts. Coal: 240 tons. 25 mines carried. Complement: 105.

Note.—*Berkisatvet* was mined and had her stern rebuilt during the Great War. *Peykisevket* was torpedoed by British Submarine *E* 11, August, 1915, but was beached and salved. Both ships refitted extensively, 1937–39.

Submarine Depot Ships.

DALGIC. Reported to have been laid down at Ismit in 1938 or 1939. Particulars wanted.

1938, *courtesy Dott. Ing. L. Accorsi.*

ERKIN (ex-N.D.L. liner *Trier*), (Weser, Bremen, 1923). Purchased in July, 1936. Displacement: 16,800 tons. 9,415 tons *gross*. Dimensions: 458½ × 57½ × 28 feet. Machinery: Triple expansion. I.H.P.: 4,200 = 12·5 kts.

Surveying Vessel.

1937, *"Yavuz."*

AYDIN REIS (St. Nazaire, June, 1912). Refitted in 1925. 502 tons. Dimensions: 178½ × 27½ × 8 feet. No Guns. Boilers: Babcock. H.P.: 1,025 = 14 kts.

Diving Tender.

1937, *"Yavuz."*

AKIN (ex-*Rasit*, ex-*Cow-Whale*), (Smith's Dock Co., 1915). Ex-Admiralty whaler, purchased 1926. Displacement: 336 tons. Dimensions: 139¾ × 25 × 6½ feet. Machinery: Triple expansion. 1 shaft. H.P.: 1,000 = 12 kts. Coal: 60 tons. Complement: 26. Fitted with deep sea diving apparatus, with which a depth of 115 fathoms has been reached.

Motor Launch.

Photo, Messrs. J. I. Thornycroft & Co.

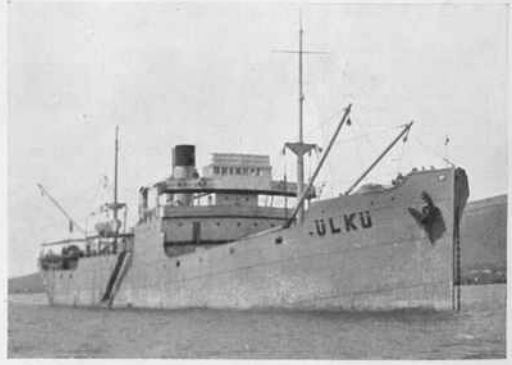
1 *Thornycroft* type: **MÜLÂZIM HAYATI** (ex-*No.* 14), (1911). Dimensions: 62 × 11 × 2½ feet. Guns: 2 M.G. 140 H.P. Thornycroft petrol motor = 11 kts. Bullet-proof steel over conning position and engines.

Oiler.

1938, *courtesy Dott. Ing. L. Accorsi.*

GÖLCÜK (Gölcük Dockyard, Ismit, Nov. 4, 1935). Displacement: 1,255 tons. Deadweight capacity: 750 tons. Dimensions: 185 × 31½ × 10 feet. Machinery: B. & W. Diesel. H.P.: 700 = 12·5 kts.

Collier.



1938, *courtesy Dott. Ing. L. Accorsi.*

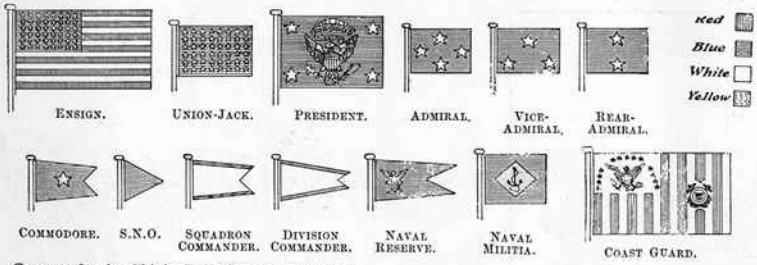
ULKU (ex-*Shandon*, 1919). Built at West Hartlepool. Purchased in 1934. Displacement: 7,233 tons, 3,069 tons *gross*. Dimensions: 331 × 46¾ × 21¾ feet (*mean*). Machinery: Triple expansion. H.P.: 1,750 = 10 kts. 3 cyl. boilers. Deadweight capacity: 5,150 tons.

UNITED STATES NAVY.

UNIFORMS.

Note.—Lieutenants, junior grade, have 1½ stripes. Chief Warrant Officers one stripe broken with blue. Line Warrant Officers have one half stripe broken with blue. Staff Warrant Officers under Chiefs have no sleeve mark. Engineers same as Line Officers (interchangeable). Other branches than executive wear no sleeve star, but have following badges of branch over top stripe.

FLAGS.



Commander in Chief: Franklin D. Roosevelt.
Secretary of the Navy: Colonel W. Franklin Knox.
Assistant Secretary of the Navy: Lewis Compton.
Under Secretary of the Navy: James Forrestal.
Chief of Naval Operations: Admiral Harold R. Stark.
Asst. Chief of Naval Operations: Rear-Admiral Robert L. Ghormley.
General Board: Rear-Admirals W. R. Sexton, J. W. Greenslade, C. E. Courtney, A. W. Johnson, F. J. Horne, E. J. King.

Personnel U.S.N. and Marine Corps: 180,564 officers and men. Reserves: Officers, 15,806, Men, 55,078. Total on duty in Sept. 1940 (including Reserves called up) was 239,281 officers and men.
Naval Attaché, London: Captain Alan G. Kirk.

Principal Guns in the U.S. Fleet.

(Officially revised, 1929.)

Built at Washington Gun Factory, proved at Indian Head, Dahlgren, Va., and Potomac Range.

	Notation.	Nominal Calibre.	Mark or Model.	Length in Calibres.	Weight of Gun.	Weight of A.P. Shot.	*Service* Initial Velocity.	*Maximum* penetration firing capped A.P. direct impact against K.C. armour. 9000 yards	6000 yards	3000 yards	Muzzle Energy.
		inch.			tons.	lbs.	ft. secs.	in.	in.	in.	ft-tons.
HEAVY		16	II	50	128	2100	2800	...	...	...	...
		16	I	45	105	2100	2600	...	...	...	98,531
		14	IV	50	81	1400	2800	...	...	...	76,087
		14	I	45	63½	1400	2600	18	...	...	...
		12	VII	50	56·1	870	2900	11·0	13·9	17·5	50,783
		12	VI	45	53·6	870	2700	10·6	13·3	16·6	44,020
		12	V	45	52·9	870	2700	9·8	12·3	15·5	44,020
MEDIUM		8	IX	55	19·7	250	3000	...	...	...	16,240
		8	VI	45	18·7	260	2750	4·4	6·1	8·6	13,630
		8	V	40	18·1	260	2500	4·0	5·3	7·5	11,264
		6	XII	53	10	105	3000	...	...	...	6,551
		6	VIII	50	8·6	105	2800	2·3	3·2	5·2	5,707
		6	VI	50	8·3	105	2600	2·2	2·9	4·7	4,920
		6*	IX	45	7·0	105	2250	2·1	2·5	3·8	3,685
		6*	IV. VII	40	6·0	105	2150	2·1	2·4	3·6	3,365
		5	VII	51	5·0	50	3150	1·4	1·8	3·4	3,439
		5	VI	50	4·6	50	3000	1·4	1·7	3·2	3,122
		5	V & VI	50	4·6	60	2700	1·6	2·0	3·5	3,032
		5*	II, III, IV	40	3·1	50	2300	1·4	1·7	2·6	1,834
LIGHT and AA.		4◎	IX	50	3·0	33	2900	...	...	..	1,926
		4◎	VIII	50	2·9	33	2800	1·2	1·5	2·6	1,794
		4◎	VII	50	2·6	33	2500	1·2	1·4	2·2	1,430
		4◎	III,IV,V,VI	40	1·5	33	2000	...	1·2	1·7	915
		3§	X	50	1·15	13	2700	...	...	...	657
		3	V, VI, *S-A*	50	1·0	13	2700	...	0·8	1·2	658
		3◎	II, III	50	0·9	13	2700	...	0·8	1·2	658

(There are a 6 inch, 47 cal.,* a 5 inch, 38 cal., 1932, and a 5 inch 25 cal. AA.)

*=Brass cartridge case. § Anti-aircraft gun.

All guns use nitro-cellulose.

Naval Appropriation.

1938–1939 $546,866,494. 1939–1940, $943,360,249. 1940-41 $1,867,451,208.

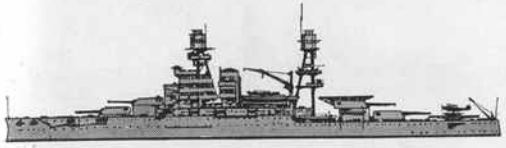
Mercantile Marine.

("Lloyd's Register," 1939, figures.)

Total *gross* tonnage, including Great Lakes and Philippines, 3,375 vessels of 12,003,028 tons.

NEW YORK.
(TEXAS, Platform above foretop).

ARKANSAS.



PENNSYLVANIA.
(ARIZONA similar, but shorter funnel)

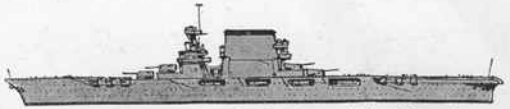
OKLAHOMA.

NEVADA.

NEW MEXICO *class*.

MARYLAND and CALIFORNIA *classes*.

WYOMING.



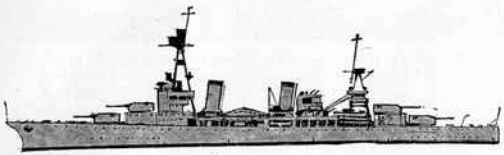
SARATOGA (with thick vertical stripe down middle of funnel).
LEXINGTON (with platform around funnel near top.)

RANGER.

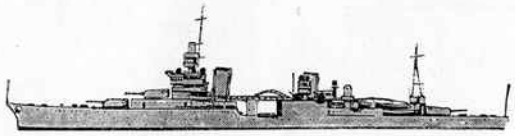
YORKTOWN.
(ENTERPRISE same but without Y on funnel.)

WASP.

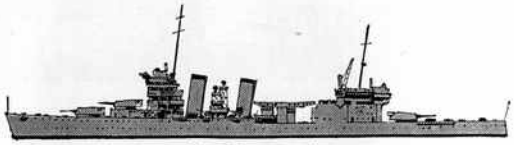
LANGLEY.



PENSACOLA.
(SALT LAKE CITY similar, with topmast abaft maintop.)

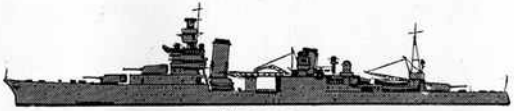


INDIANAPOLIS.



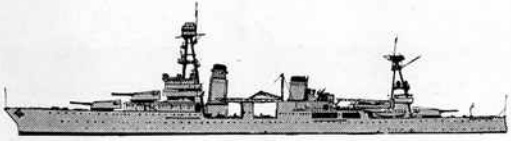
NEW ORLEANS *class.*
(Some have thinner funnels).

CHESTER. HOUSTON. AUGUSTA. CHICAGO. LOUISVILLE.

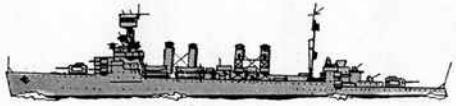


PORTLAND.

WICHITA.



NORTHAMPTON.



OMAHA *class.*

BROOKLYN *class.*
Also HELENA, ST. LOUIS, with mainmast and superstructure immediately abaft 2nd funnel.

FARRAGUT *class*, 348–355. (Part sketch, DEWEY)

GRIDLEY *class*, 380, 382, 386–393.

(Some have S.L. platform between T.T.)

Flush Deckers.

(HAMILTON has had 1st funnel removed; DAHLGREN has had 3rd and 4th funnels combined in one large casing.)

PORTER *class*, 356—363.

(Some have clinker screen to forefunnel.)

MAURY *class*, 397–408.

Light Mine Layers.

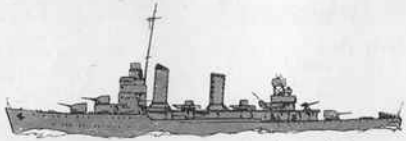
MAHAN *class*, 364–379.

(Some lack clinker screen to fore funnel).

SIMS *class*, 409–420.

CONNOR. STOCKTON.

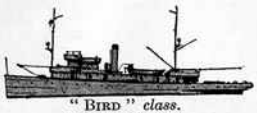
DUNLAP, 384. FANNING, 385.



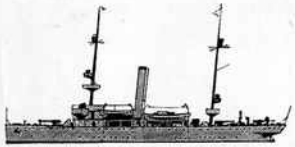
BENSON *class*, 421—444 (earlier units).

SOMERS *class*, 381, 383, 394–396.

BENSON *class*, 421—444, (later units).



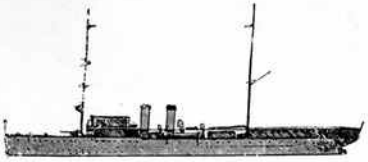
"Bird" *class.*
(*Minesweepers.*)



Asheville *class.*

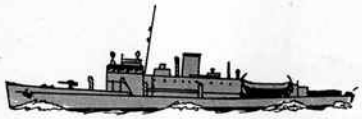
Charleston, Erie

Eagle boats.



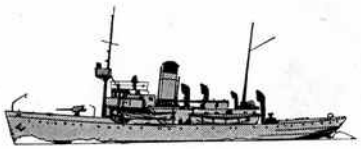
Isabel.

Pamlico



Active *class.*

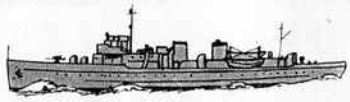
G. W. Campbell *class.*
(Seaplane carried aft in some.)



Algonquin *class.*

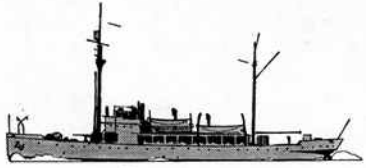
Chelan *class.*

Haida *class.*

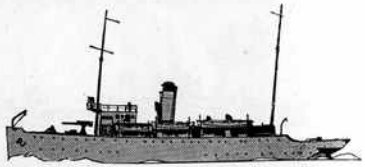


Argo *class except* Aurora, Daphne, Perseus, only 1 funnel.

(Some have thinner 2nd funnel)

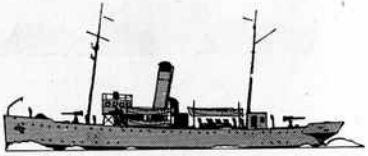


Northland.



Unalga.

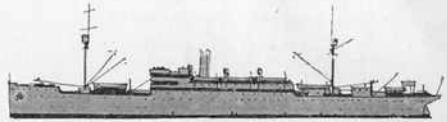
Shawnee.



Tallapoosa.
(Ossipee similar).

WRIGHT.

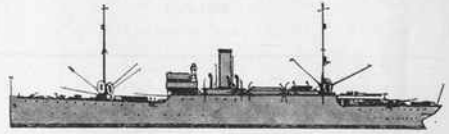
BUSHNELL.



BRIDGEPORT.

PATOKA.

HOLLAND.
(Topmasts now shortened).



CAMDEN.

BEAVER.

WHITNEY *class*.

CANOPUS.

MELVILLE.

MEDUSA.

BLACK HAWK.

CHILDS *class* (ex-Destroyers).

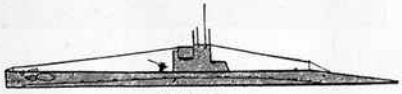
DIXIE, PRAIRIE,

ALTAIR *class*.

OGLALA.

ARCOSTOOK.

S.C. boats.



"O" *class.*

BARRACUDA *class.*

DOLPHIN.

"R" *class.*

ARGONAUT.

CACHALOT *class.*

S. 1, 3, 6–41

NARWHAL *class.*

PIKE *class.*
(PERCH *class* similar).

S. 22, 42–47.

SARGO *class.*

S. 48.

FLEET ORGANISATION (This refers to 1939. Details for 1940 are not available.)

The United States Fleet.

Commander-in-Chief, United States Fleet
PENNSYLVANIA (*Flag*)
Note: HOUSTON (*Relief Flag*)

Battle Force, U.S. Fleet

Commander, Battle Force, U.S. Fleet
CALIFORNIA (*Flag*)

Battleships, Battle Force, U.S. Fleet

Commander, Battleships, Battle Force, U.S. Fleet

WEST VIRGINIA (*Flag*)

Batdiv One	*Batdiv Two*
Combatdiv One	*Combatdiv Two*
ARIZONA (F)	TENNESSEE (F)
NEVADA	OKLAHOMA
PENNSYLVANIA (FF)	CALIFORNIA (FF)
Batdiv Three	*Batdiv Four*
Combatdiv Three	*Combatdiv Four*
IDAHO (F)	WEST VIRGINIA (F)
MISSISSIPPI	COLORADO
NEW MEXICO	MARYLAND

Cruisers, Battle Force, U.S. Fleet

Commander, Cruisers, Battle Force, U.S. Fleet

HONOLULU (*Flag*)

Crudiv Three	*Crudiv Eight*	*Crudiv Nine*
Comcrudiv Three	*Comcrudiv Eight*	*Comcrudiv Nine*
CONCORD (F)	PHILADELPHIA (F)	HONOLULU (F)
CINCINNATI	BROOKLYN	PHOENIX
MILWAUKEE	SAVANNAH	BOISE (RFF)
OMAHA	NASHVILLE	ST. LOUIS
TRENTON		

Destroyers, Battle Force, U.S. Fleet

Commander, Destroyers, Battle Force, U.S. Fleet
DETROIT (*Flag*)

Destroyer Flotilla One

Commander, Flotilla One, Destroyers, Battle Force, U.S. Fleet

RALEIGH .. Flagship
DOBBIN .. Tender for Squadrons One and Three
WHITNEY .. Tender for Squadrons Two and Nine
Destroyer Squadron One .. PHELPS, *Flag*
Destroyer Squadron Two .. PORTER, *Flag*
Destroyer Squadron Three .. CLARK, *Flag*
Destroyer Squadron Nine .. MCDOUGAL, *Flag*

Destroyer Squadron One

COMDESRON ONE
PHELPS (*Flag*)

Desdiv One	*Desdiv Two*
Comdesdiv One	*Comdesdiv Two*
DEWEY (F)	AYLWIN (F)
HULL	DALE
MACDONOUGH (RF)	FARRAGUT (RF)
WORDEN	MONAGHAN

Destroyer Squadron Two

COMDESRON TWO
PORTER (*Flag*)

Desdiv Three	*Desdiv Four*
Comdesdiv Three	*Comdesdiv Four*
DRAYTON (F)	CUSHING (F)
FLUSSER	PERKINS
LAMSON (RF)	PRESTON (RF)
MAHAN	SMITH

Destroyer Squadron Three

COMDESRON THREE
CLARK (*Flag*)

Desdiv Five	*Desdiv Six*
Comdesdiv Five	*Comdesdiv Six*
CASSIN (F)	CASE (F)
CONYNGHAM	SHAW
DOWNES (RF)	CUMMINGS (RF)
REID	TUCKER

Destroyer Squadron Nine

COMDESRON NINE
MCDOUGAL (*Flag*)

Desdiv Seventeen	*Desdiv Eighteen*
Comdesdiv Seventeen	*Comdesdiv Eighteen*
SOMERS (F)	DAVIS (F)
WARRINGTON	JOUETT
WINSLOW	SAMPSON

Destroyer Flotilla Two

Commander, Flotilla Two, Destroyers, Battle Force, U.S. Fleet

DETROIT .. Flagship
ALTAIR .. Tender for Squadrons Four and Six
MELVILLE .. Tender for Squadrons Seven, Eight, Twelve and Division Nineteen.
Destroyer Squadron Four .. SELFRIDGE, *Flag*
Destroyer Squadron Six .. BALCH, *Flag*
Destroyer Squadron Eight .. WINSLOW, *Flag*
Destroyer Squadron Twelve .. MOFFETT, *Flag*
Destroyer Division Nineteen .. RATHBURNE, *Flag*

Destroyer Squadron Four

COMDESRON FOUR
SELFRIDGE (*Flag*)

Desdiv Seven	*Desdiv Eight*
Comdesdiv Seven	*Comdesdiv Eight*
HENLEY (F)	MUGFORD (F)
HELM	RALPH TALBOT
BLUE (RF)	JARVIS (RF)
BAGLEY	PATTERSON
Desdiv Twenty-four	*Desdiv Twenty-eight*
Comdesdiv Twenty-four	*Comdesdiv Twenty-eight*
PERRY (F)	SOUTHARD (F)
WASMUTH	CHANDLER
ZANE (RF)	HOVEY (RF)
TREVER	LONG

Destroyer Squadron Six

COMDESRON SIX
BALCH (*Flag*)

Desdiv Eleven	*Desdiv Twelve*
Comdesdiv Eleven	*Comdesdiv Twelve*
GRIDLEY (F)	DUNLAP (F)
CRAVEN	BENHAM
MAURY (RF)	FANNING (RF)
MCCALL	ELLET

Destroyer Squadron Eight

COMDESRON EIGHT
WINSLOW (*Flag*)

Desdiv Nine	*Desdiv Ten*
Comdesdiv Nine	*Comdesdiv Ten*
LANG (F)	MAYRANT (F)
STACK	TRIPPE
STERETT (RF)	RHIND (RF)
WILSON	ROWAN

Destroyer Squadron Twelve

COMDESRON TWELVE
MOFFETT (*Flag*)

Desdiv Twenty-five	*Desdiv Twenty-six*
Comdesdiv Twenty-five	*Comdesdiv Twenty-six*
ANDERSON (F)	MUSTIN (F)
HAMMANN	RUSSELL
HUGHES (RF)	O'BRIEN (RF)
SIMS	WALKE

Destroyer Division Nineteen [1] [2]

COMDESDIV NINETEEN
RATHBURNE (F)
TALBOT
DENT (RF)
WATERS

[1] In reduced commission.
[2] Operates with under-water sound training school.

Aircraft, Battle Force, U.S. Fleet

Commander, Aircraft, Battle Force, U.S. Fleet
YORKTOWN (*Flag*)

Carrier Division One	*Carrier Division Two*
Comcardiv One	*Comcardiv Two*
SARATOGA (F)	YORKTOWN (F)
LEXINGTON	ENTERPRISE

Minecraft, Battle Force, U.S. Fleet

Commander, Minecraft, Battle Force, U.S. Fleet
OGLALA (*Flag*)

Mine Squadron One

Mindiv One	*Mindiv Two*
Comindiv One	*Comindiv Two*
PRUITT (F)	TANAGER (F)
PREBLE	QUAIL
SICARD	LARK
TRACY	WHIPPOORWILL

Scouting Force, U.S. Fleet

Commander, Scouting Force, U.S. Fleet
INDIANAPOLIS (*Flag*) [1]

[1] Assigned to Crudiv Six for tactical purposes.

Cruisers, Scouting Force, U.S. Fleet

Commander, Cruisers, Scouting Force, U.S. Fleet
CHICAGO (*Flag*)

Crudiv Four	*Crudiv Five*
Comcrudiv Four	*Comcrudiv Five*
NORTHAMPTON (F)	CHICAGO (F)
HOUSTON (RFF) [1]	CHESTER
PENSACOLA	LOUISVILLE
SALT LAKE CITY	PORTLAND

Crudiv Six
Comcrudiv Six
MINNEAPOLIS (F)
ASTORIA
NEW ORLEANS
SAN FRANCISCO

[1] Relief flag for Commander-in-Chief, U.S. Fleet.

Aircraft, Scouting Force, U.S. Fleet

Commander, Aircraft, Scouting Force, U.S. Fleet
MEMPHIS (*Flag*)

Note.—Tenders assigned Patrol Wings as listed below.

(1) **Patrol Wing One**

WRIGHT (AV) .. *Seaplane Tender (Flag Compatwing 1)*
AVOCET (AVP) .. *Seaplane Tender, Small*
PELICAN (AVP) .. *Seaplane Tender, Small*

(2) **Patrol Wing Two**

Fleet Air Base, Pearl Harbor
LANGLEY (AV) .. *Seaplane Tender (Flag Compatwing 2)*
SWAN (AVP) .. *Seaplane Tender, Small*
CHILDS (AVP) .. *Seaplane Tender, Small*

(3) **Patrol Wing Three**

Fleet Air Base, Coco Solo
LAPWING (AVP) .. *Seaplane Tender, Small (Flag Compatwing 3)*
SANDPIPER (AVP) .. *Seaplane Tender, Small*

(4) **Patrol Wing Four**

TEAL (AVP) .. *Seaplane Tender, Small*
WILLIAMSON (AVP) .. *Seaplane Tender, Small (Flag Compatwing 4)*

(5) **Patrol Wing Five**

Fleet Air Base, Sitka
GANNET (AVP) .. *Seaplane Tender, Small (Flag Compatwing 5)*
THRUSH (AVP) .. *Seaplane Tender, Small*
OWL (AM) [1] .. *Minesweeper serving as Seaplane Tender, Small*

[1] OWL assigned additional duty Fifth Naval District.

Atlantic Squadron, U.S. Fleet

Commander, Atlantic Squadron, U.S. Fleet

NEW YORK (*Flag*)
RANGER

Batdiv Five [1]	*Crudiv Seven*
Combatdiv Five	*Comcrudiv Seven*
NEW YORK (F)	QUINCY
ARKANSAS	TUSCALOOSA
TEXAS (RF)	VINCENNES
WYOMING [2]	WICHITA (F)

[1] In reduced commission.
[2] Classed as an AG—operates with Batdiv Five.

Destroyer Squadron Ten

COMDESRON TEN
DECATUR (*Flag*)

Desdiv Twenty-One	*Desdiv Twenty-Two*	*Desdiv Twenty-Seven* [1]
HOPKINS	LEARY	BORIE
REUBEN JAMES	SCHENCK	BROOME
BARRY	FAIRFAX	SIMPSON
GOFF	MANLEY [2]	TRUXTUN

Desdiv Twenty-Nine	*Desdiv Thirty*
BADGER [3]	ROPER
JACOB JONES [3]	HAMILTON
HERBERT [4]	BABBITT
DICKERSON [5]	CLAXTON [6]

[1] In reduced commission.
[2] Converted to an AG. Operates with Desron Ten.
[3] Assigned duty with Squadron 40-T.
[4] To relieve BADGER in Squadron 40-T in second quarter, fiscal year 1940.
[5] To relieve JACOB JONES in Squadron 40-T in second quarter, fiscal year 1940.
[6] Assigned duty at U.S. Naval Academy.

FLEET ORGANISATION

Submarine Force, U.S. Fleet

Commander, Submarine Force, U.S. Fleet

RICHMOND (*Flag*)
LITCHFIELD

Submarine Base, New London

SUBMARINE SQUADRON TWO

Commander, Submarine Base, New London, and Commander, Submarine Squadron Two.

FALCON (*Submarine Rescue Vessel*)

Subdiv Four	*Subdiv Eight* [1]
Comsubdiv Four	*Comsubdiv Eight*
(SS91) R—14 (F)	(SS129) S—24 (F)
(SS79) R—2	(SS126) S—21
(SS81) R—4	(SS130) S—25
(SS87) R—10	(SS131) S—26
(SS88) R—11	(SS134) S—29
(SS90) R—13 (FF)	(SS135) S—30

[1] In commission in reserve at New London.

Experimental Division One

SEMMES (*Experimental Vessel*)
(SS125) S—20
(SS127) S—22

Submarine Squadron Three

Submarine Base, Coco Solo

Commander, Submarine Squadron Three, and Submarine Base, Coco Solo

MALLARD (*Submarine Rescue Vessel*)

Subdiv Eleven
Comsubdiv Eleven
(SS155) S—44 (FF)
(SS153) S—42 (F)
(SS154) S—43
(SS156) S—45
(SS157) S—46
(SS158) S—47

Submarine Squadron Four

Submarine Base, Pearl Harbour

Commander, Submarine Squadron Four, and Submarine Base, Pearl Harbor

KEOSANQUA .. *Tender*
SEAGULL .. *Tender*
WIDGEON .. *Submarine Rescue Vessel*

Subdiv Seven	*Subdiv Twelve*	*Subdiv Thirteen* [1]
Comsubdiv Seven	*Comsubdiv Twelve*	*Comsubdiv Thirteen*
(SS128) S—23 (F)	NAUTILUS (F)	SHARK (F)
(SS123) S—18	ARGONAUT (FF)	CACHALOT
(SS139) S—34	DOLPHIN	CUTTLEFISH
(SS140) S—35	NARWHAL	PLUNGER
		POLLACK
		POMPANO

[1] To be reorganized as shown under note at foot of "Unassigned" group, about 1 April, 1940.

Submarine Squadron Six

(Normally operates with Battle Force)
Commander, Submarine Squadron Six

PERCH .. *Flag*
HOLLAND .. *Tender*
BEAVER .. *Tender*
ORTOLAN .. *Submarine Rescue Vessel*

Subdiv Fifteen	*Subdiv Sixteen*
Comsubdiv Fifteen	*Comsubdiv Sixteen*
SNAPPER (F)	SARGO (F)
SALMON	SAURY
SEAL	SCULPIN
SKIPJACK	SPEARFISH
STINGRAY	SQUALUS
STURGEON	SWORDFISH

Experimental Division Two [1]

(SS132) S—27
(SS133) S—28

[1] Operating with Underwater Sound Training School.

Unassigned

Four new submarines, due for commissioning in fiscal year 1940, operating under the Chief of Naval Operations.

SEADRAGON
SEALION
SEARAVEN
SEAWOLF

Base Force U.S. Fleet

Commander, Base Force, U.S. Fleet

ARGONNE .. *Flag*
RIGEL .. (*AD*) *Also Receiving Ship, San Diego*

Train, Base Force

Commander, Train

ARGONNE (*Flag*)

Fleet Training Base, San Clemente
Fleet Air Base, San Pedro
Destroyer Base, San Diego

ANTARES	(AG)	BRAZOS	(AO)
ARCTIC	(AF)	CUYAMA	(AO)
BRIDGE	(AF)	KANAWHA	(AO)
UTAH	(AG)	NECHES	(AO)
RELIEF	(AH)	CIMARRON	(AO)
BOBOLINK	(AM)	NEOSHO	(AO)
BRANT	(AM)	PLATTE	(AO)
GREBE	(AM)	MEDUSA	(AR)
KINGFISHER	(AM)	VESTAL	(AR)
PARTRIDGE	(AM)	ALGORMA	(AT)
RAIL	(AM)	KALMIA	(AT)
ROBIN	(AM)	PINOLA	(AT)
TERN	(AM)	SONOMA	(AT)
TURKEY	(AM)	NAVAJO	(AT)
VIREO	(AM)	SEMINOLE	(AT)

Mobile Target Division One, Base Force

Comtardiv One

DORSEY	(DD) (F)
ELLIOT	(DD)
BOGGS	(AG)
LAMBERTON	(AG)

Asiatic Fleet

Commander-in-Chief, Asiatic Fleet

AUGUSTA (*Flag*)
MARBLEHEAD
ASHEVILLE
ISABEL
TULSA

Yangtze Patrol.

Comyangpat
LUZON (F)
GUAM
OAHU
TUTUILA

South China Patrol

Comsopat
MINDANAO (F)

Destroyers, Asiatic Fleet

Destroyer Squadron Five.

Commander, Destroyer Squadron Five

PAUL JONES .. *Squadron Leader*
BLACK HAWK .. *Tender*

Desdiv Thirteen	*Desdiv Fourteen*
Comdesdiv Thirteen	*Comdesdiv Fourteen*
WHIPPLE (F)	STEWART (F)
ALDEN (RF)	BULMER (RF)
BARKER	EDSALL
EDWARDS, J. D.	PARROTT
Desdiv Fifteen	
Comdesdiv Fifteen	
PEARY (F)	
FORD, J. D. (RF)	
PILLSBURY	
POPE	

Submarine Squadron Five.

Commander, Submarine Squadron Five

CANOPUS .. *Flag*
PIGEON .. *Submarine Rescue Vessel*

Subdiv Ten
Comsubdiv Ten
(SS142) S—37 (F)
(SS141) S—36
(SS143) S—38
(SS144) S—39
(SS145) S—40
(SS146) S—41
Subdiv Fourteen
Comsubdiv Fourteen
PERCH (F)
PORPOISE
PIKE
TARPON
PICKEREL
PERMIT

Train, Asiatic Fleet

Mindiv Three
BITTERN
FINCH

Aircraft Detachment.

HERON (AVP) .. *Seaplane Tender, Small*

Auxiliaries

PECOS (F)

Special Service Squadron.

Commander, Special Service Squadron

CHARLESTON (F)
ERIE (RF)
TATTNALL
J. FRED TALBOTT

Naval Transportation Service

CHAUMONT
HENDERSON
BARNETT
MCCAWLEY
HARRIS
ZEILIN
WHARTON
NITRO
PYRO
RAMAPO
SALINAS
SIRIUS
TRINITY
VEGA
CAPELLA

Special Duty

ACUSHNET	5th Naval District
ALLEGHENY	4th Naval District
BAGADUCE	11th Naval District
BOWDITCH	Survey Duty
BUSHNELL	Survey Duty
CORMORANT	Bureau of Ordnance
CUYAHOGA	Special duty
DAHLGREN	Engineering Experimental, under Chief of Naval Operations
GOLDSTAR	Station Ship, Guam
HANNIBAL	Surveying duty
KEWAYDIN	5th Naval District
MONTCALM	Guantanamo
NAPA	16th Naval District
ONTARIO	Station Ship, Samoa
ORIOLE	13th Naval District
PENGUIN	Guam
POTOMAC	Special duty
SAGAMORE	3rd Naval District
SUNNADIN	14th Naval District
UMPQUA	6th Naval District
WANDANK	1st Naval District
WOODCOCK	15th Naval District

SHIP NOMENCLATURE.

Battleships will be named after States; heavy and light cruisers after large cities; aircraft carriers after historical naval vessels or battles; destroyers after officers and enlisted men of the Navy and Marine Corps, Secretaries of the Navy, Members of Congress and inventors.

Submarines will be named after fish; minesweepers after birds; gunboats after small cities; river gunboats after islands; submarine tenders after pioneers in submarine development; repair ships after mythological characters; oilers after rivers; cargo ships after stars; destroyer tenders after natural areas of the United States; large seaplane tenders after sounds; small seaplane tenders after bays, straits and inlets; ocean-going tugs after Indian tribes; and harbour tugs after Indian chiefs and words of the Indian dialect.

(Iowa Class—11 Ships).

IOWA, NEW JERSEY, MISSOURI, WISCONSIN, and 7 more.

Standard displacement : 45,000 tons.
Complement :
Length, 880 feet (*over all*). Beam, 108 feet. Draught, 36 feet (*max.*).
Guns : **9**—16 inch
20—5 inch, 38 cal.
16 smaller.
Aircraft : 4. Catapults : 2.
Armour : Not reported.
Machinery : Geared turbines. Designed Speed : Over 30 kts. (35 kts. reported unofficially). Boilers as in *Washington* class. Oil fuel.

Notes.—First pair to be completed in 1944. Cost reported to be $85,000,000 each, but this may not include armament. Also given as $93,000,000 for *New Jersey*. Last 7 have also been reported as ships of about 52,000 tons each, in which case they are of a new design. It is possible one or two of the battleships to be laid down at Philadelphia and Norfolk may be built in dry dock.

(*No plan available*)

Programme	*Name and No.*	*Builder*	*Machinery*	*Laid down*
1939	*Iowa* (61)	New York Navy Yd.	Westinghouse Co.	June 27, 1940
	New Jersey(62)	Philadelphia Navy Yd.	Do.	Sept. 16, 1940
1940	*Missouri* (63)	New York Navy Yd.	Do.	*To be* 1941
	Wisconsin (64)	Philadelphia Navy Yd.	Do.	
1940	69 and 70	New York Navy Yd.	Do.	
	65, 67, 68	Philadelphia Navy Yd.	Do.	*To be* 1941
	66 and 71	Norfolk Navy Yd.	Do.	

(Washington Class—6 Ships)

NORTH CAROLINA (June 13, 1940), WASHINGTON (June 1, 1940), INDIANA, MASSACHUSETTS ALABAMA, SOUTH DAKOTA.

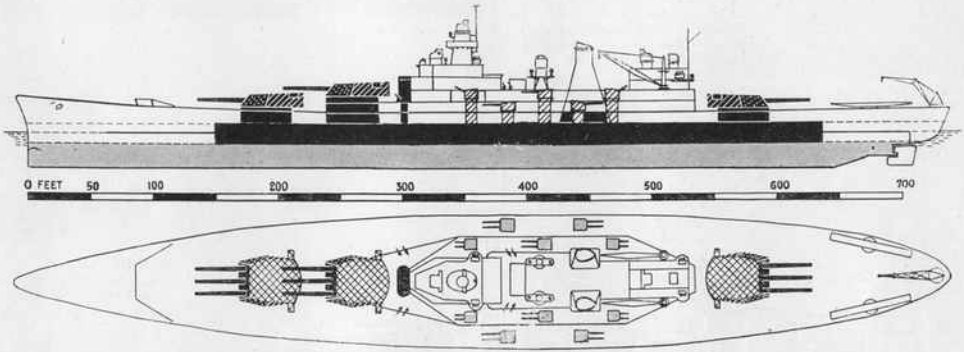
Standard displacement: 35,000 tons. (*About* 41,000 tons, full load.)
Complement : 1,500
Length : 750 feet. Beam : 108 feet. Draught : 36 feet (*mean*).

Guns:
9—16 inch.
20—5 inch, 38 cal. (dual purpose).
16 smaller.

Armour: (Unofficial)
16″ Belt amidships.
6″ Upper Deck.
4″ Lower Deck.

Aircraft : 4 Catapults : 2

Note to Plan.—This is believed to represent with accuracy the design of the *North Carolina* and *Washington*; but it is quite likely that further modifications may be made in the course of construction, and that the appearance of the ships when completed may vary from that shown here.



Machinery : Geared turbines. 4 shafts. S.H.P. : 115,000 = 28 kts. (4 later ships may be S.H.P. : 130,000 = 30 kts.). Babcock and Wilcox boilers of a new pattern (working pressure reported to be 600 lb. per sq. inch, with 400° of superheat). Oil fuel.

General Notes.—Delays in laying down these ships have been due to changes in design, late delivery of materials and necessity for extending and strengthening building slips. Ships are to be fully 35 per cent. welded. Engine room will be arranged on a novel plan to save weight. Cost estimated at $68,741,300 for *N. Carolina*, $65,815,200 for *Washington*, $52,794,000 for *S. Dakota*, $49,540,000 for *Indiana*, and $49,815,000 for *Massachusetts*. Last 3 figures exclude cost of armament.

Programme	*Name*	*Builder*	*Machinery*	*To replace*	*Laid down*	*To be completed*
1936	*N. Carolina*	New York Navy Yard	Westinghouse Co.	*Arkansas*	Oct. 27, 1937	Nov., 1941
	Washington	Philadelphia Navy Yard	Westinghouse Co.	*Texas*	June 14, 1938	Oct., 1942.
1938	*Indiana*	Newport News Co.	Westinghouse Co.	*New York*	Nov. 20, 1939	1943
	Massachusetts	Bethlehem Steel Co. (Quincy)	Builders	*Nevada*	July 20, 1939	
	Alabama	Norfolk Navy Yard	Westinghouse Co.	*Oklahoma*	Feb. 1, 1940	
	S. Dakota	New York S.B. Corpn.	Builders	*Pennsylvania*	July 5, 1939	

(Maryland Class—3 Ships.)

COLORADO (March 22nd, 1921), **MARYLAND** (March 20th, 1920), and **WEST VIRGINIA** (Nov. 19th, 1921).

Standard displacement, *Colorado*, 32,500 tons. *Maryland*, 31,500. *W. Virginia* 31,800 tons. *Full load*, 33,590 tons. Complement, 1407.

Complement of *W. Virginia* as fleet flagship, 1486.

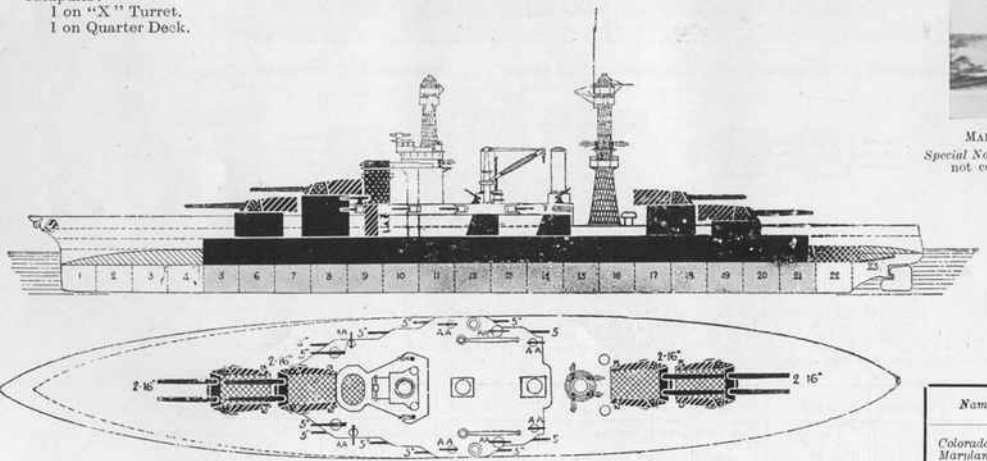
Length (*w.l.*), 600 feet. (*o.a.*), 624 feet.
Beam, 97½ feet.

Mean draught, 30½ feet 29⅔ feet and 30 feet respectively.
Max. draught of all, 35 feet.

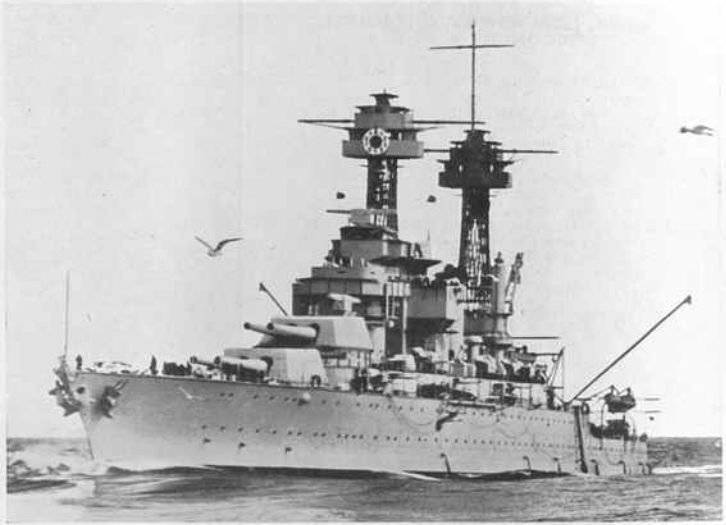
Guns:
- 8—16 inch, 45 cal. Mk. I.
- 12—5 inch, 51 cal.
- 8—5 inch (AA.) Mk. X.
- 4—6 pdr. (saluting).
- 2—1 pdr.
- 2—M.G.
- 11— M.G., AA.

Torpedo tubes (removed)
Aircraft: 3
Catapults:
- 1 on "X" Turret.
- 1 on Quarter Deck.

Armour:
- 16"—14" Belt
- 8" Belt (aft)
- 3" Deck (ends)
- 16"—9" Funnel bases
- 18"—9" Turrets
- 16" Conning tower and tube
- 3½" upper and 2½" lower armour decks.



Machinery: In *Colorado* Westinghouse turbines and electric drive; in *Maryland* and *W. Virginia*, G.E. turbines and electric drive. Designed S.H.P. 27,300 = 21kts. cf. trials. 4 shafts. Boilers: 8 Babcock & Wilcox. Fuel (oil only): *normal* 2500 tons; *maximum* 4000 tons (unofficial figures).



Maryland. *Added* 1938, *Theo. N. Silberstein.*

Special Note.—Provision was to have been made for the modernisation of this class during 1940–41, but this is not contemplated in the near future.

Gunnery Notes.—Maximum elevation of 16 inch 30°; Maximum range at this elevation unofficially stated to be 33,300 yards. Turrets electrically manœuvred and with electric hoists. Excepting increase of calibre to 16 inch, otherwise as Notes for *Tennessee* Class. New director system installed, 1923. Main control is at a height of 120 feet above sea level.

Armour Notes. As for *California* and *Tennessee*.

Anti-Torpedo Protection.—Ferrati type triple hull and minute internal subdivision by longitudinal and transverse unpierced bulkheads.

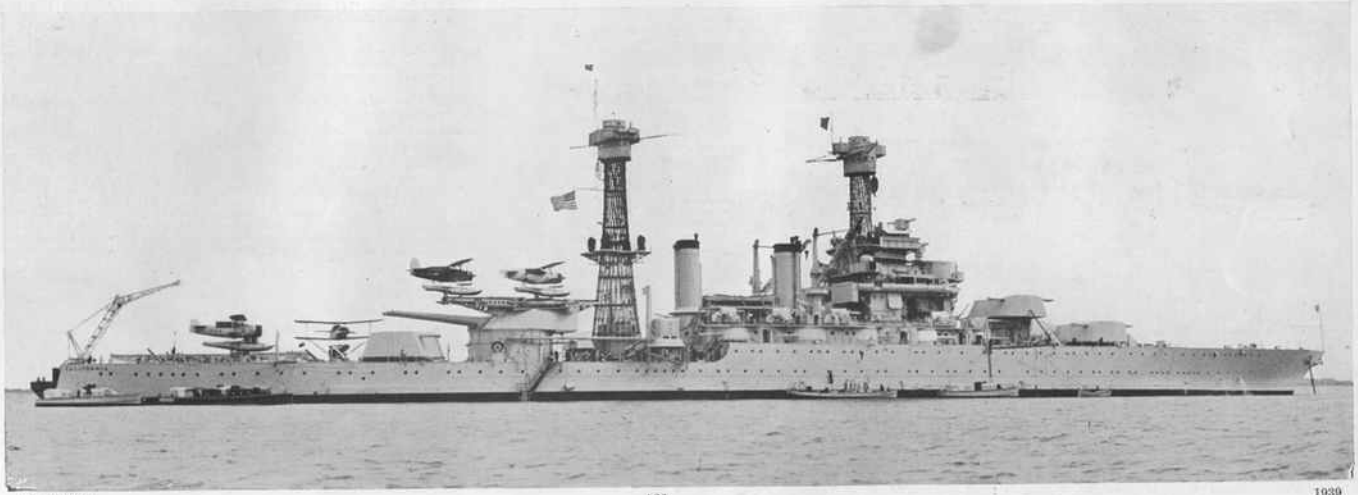
Engineering Notes.—"Electric Drive" is identical with that for the *California* Class but in these ships, electric installation has been extended. Part of steam generated in boilers is diverted for running six auxiliary turbo-generators, supplying current to anchor gear, workshop lathes, refrigerating plant, bakeries, &c. Guns are also electrically manœuvred, ammunition hoists are electric. In fact, every possible item of equipment, even down to potato peelers and ice-cream freezers is run by electric power. Estimated weight of machinery, 2002 tons. Heating surfaces as *Tennessee* on a later page.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*	*Best recent speed*
Colorado	New York S.B. Co.	Westinghouse Co.	May '19	Aug. '23	37,480 = 20·67	Babcock	21
Maryland	Newport News	Gen. Elec. Co.	Apl., '17	July '21	36,167 = 21·07	Babcock	
W. Virginia	Newport News	Gen. Elec. Co.	Apl., '20	Dec. '23	= 21·1	Babcock	

General Notes.—Authorised 1916 as *No. 45* (*Colorado*), *No. 46* (*Maryland*), and *No. 48* (*W. Virginia*). *W. Virginia* and *Maryland* both fitted as Flagships. Except for change in primary armament, and differences in displacement, they are identical in nearly all respects with *California* class. *Washington* of this type scrapped before completion under Naval Treaty of 1922.

W. Virginia. 1935, *Bear Photo Service*

W. Virginia—bow view. 1924 *Photo Abrahams*



California. 1939

(California *class*—2 ships.)

CALIFORNIA (Nov. 20th, 1919) and TENNESSEE (April 30th, 1919).

Displacement: *Standard* 32,600 and 32,300 tons, respectively. *Full load*, 35,190 tons. Complement: 1,480.

Length { (*w.l.*) 600 feet. (*o.a.*) 624 feet. } Beam 97½ feet. { *Mean* draught, 30½ feet, and 30½ ft. resp. *Max.* ,, 35½–35 feet, resp. }

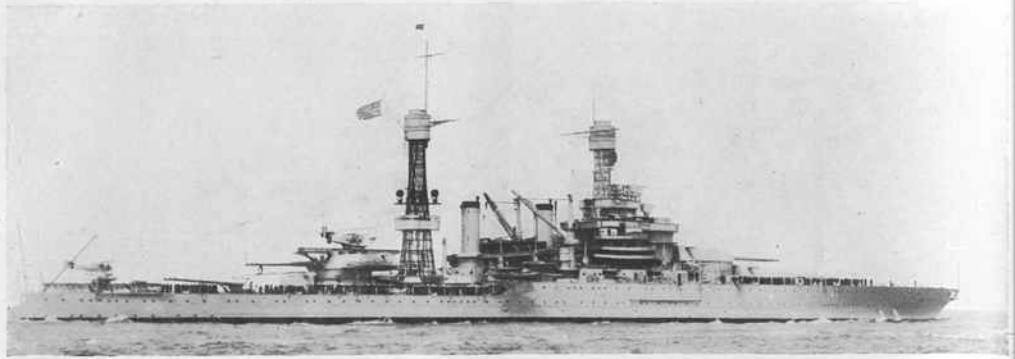
Guns:
- 12—14 inch, 50 cal., Mk. IV.
- 12—5 inch, 51 cal.
- 8—5 inch, 25 cal. AA.
- 4—6 pdr. (saluting).
- 2 —1 pdr.
- 2 M.G.
- 11 M.G. AA.

Torpedo tubes (removed).

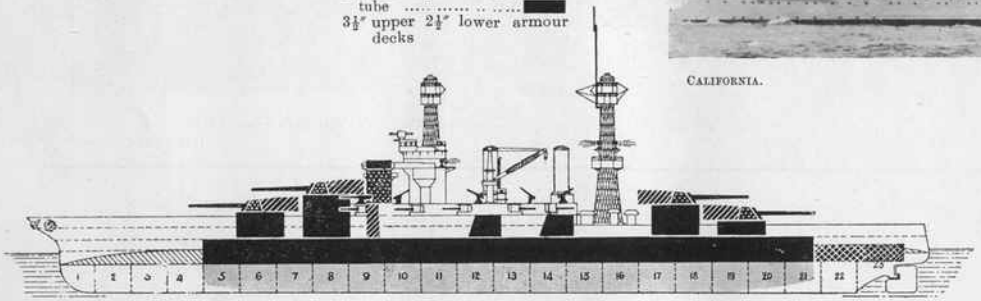
Aircraft: 3

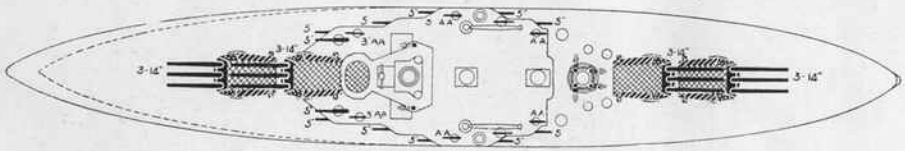
Catapults:
- 1 on "X" turret.
- 1 on Q.D.

Armour:
- 14″ Belt .. ..
- 8″ Belt (aft) .....
- 3″ Deck (ends) ....
- 15″—9″ Funnel bases ...
- 18″—9″ Turrets.....
- 16″ Conning tower and tube ....
- 3½″ upper 2½″ lower armour decks



California. 1930, *Official Photo*





Machinery: *California*, G. E. turbines and electric drive. *Tennessee*, Westinghouse turbines and electric drive. 4 shafts in both ships. Boilers: 8 Bureau Express type in *California*. 8 Babcock and Wilcox in *Tennessee*. Designed H.P.: 26,800 = 21 kts. Fuel (oil only): *normal* 2,200, *maximum* 3,328 tons.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Refit*	*Trials*	*Boilers*	*Best recent speed*
California	Mare Island Y.	G. E. Co.	Oct.,'16	Aug '21		21·46	Express	
Tennessee	New York Yard	Westinghouse Co.	May,'17	June'20		30,908=21·01	Babcock	

General Notes.—Authorised 1915 as *No.* 43 (*Tennessee*) and 44 (*California*). The above design is practically identical with *New Mexico* class as originally completed. *California* fitted as Flagship.

Special Note.—Provision was to have been made for the modernisation of these 2 ships during 1940–41, but "Fighting Ships" is officially informed that this is not contemplated in the immediate future.

Gunnery Notes.—The 14 inch mounted in separate sleeves; elevation, up to 30°. Maximum range stated to be over 35,000 yards. Main guns controlled from upper storey and 5 inch from lower storey of masthead tops. Fire control arrangements modernised, 1937.

Armour Notes.—Internal subdivision by unpierced bulkheads developed to the utmost degree below waterline

Engineering Notes.—Current generated is quarter-phase; turbine speed is controlled by mechanical governors; and control is located in one small room. Four alternating current motors, one to each propeller shaft, supplied by current at 3,400 volts, from 2 turbo-generators. *California* has squirrel-cage winding for starting and wound-rotor for running; but *Tennessee* has wound-rotors for both purposes. Motors are designed for 24 and 36 poles. Oil for trials: 1,467 tons and 187 tons feed water. Estimated weight of machinery: *California*, 1,805 tons; *Tennessee*, 2,045 tons. Heating surface: 50,984 sq. ft. for Bureau Express boilers in *California*; 41,768 sq. ft. + 4,168 sq. ft. (superheated) for Babcock boilers in *Tennessee*. Each boiler is in a separate w.t. compartment. Boiler rooms are abeam of engine rooms (4 to port, 4 to starboard), and boilers are under central control. Turbines are in tandem on centre line. On *trials*, *Tennessee* brought to rest from full speed within 3 minutes; tactical diameter: 700 yards (full helm, both screws turning forward).

(New Mexico Class—3 ships.)

AHO	New York Shipbuilding Co.	(June 30th, 1917).
SSISSIPPI	Newport News	(January 25th, 1917).
W MEXICO	New York Navy Yard	(April 23rd, 1917).

ment { *Idaho* and *New Mexico* / *Mississippi* } 33,400 tons. / 33,000 tons. } Complement, 1323

ard

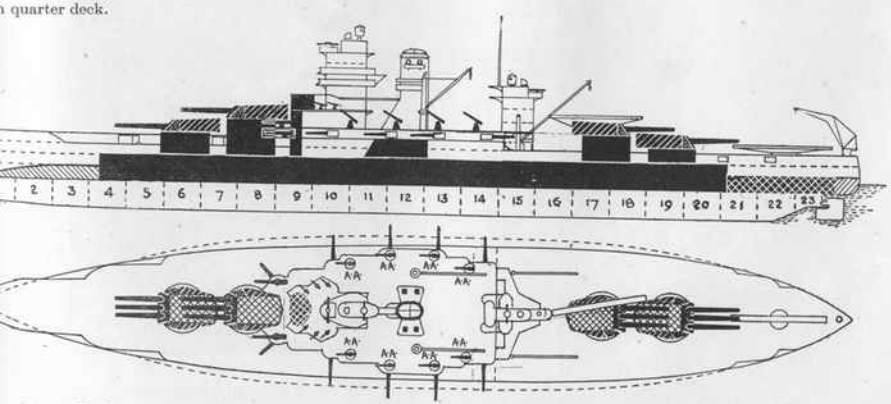
{ *waterline*, 600 feet. / *over all*, 624 feet. } Beam, 106¼ feet { *Mean* draught, Mississippi 29½ft. ; others 29½ feet. / *Max.* „ 34 feet

-14 inch, 50 cal., Mk. IV.
-5 inch, 51 cal.
-5 inch (A.A.), 25 cal.
-3 pdr. (saluting) in *Idaho* ;
4—6 pdr. in others
-M.G. AA.

: 3
s:
" X " turret.
quarter deck.

Armour :
14″ Belt (amidships) .....
8″ Belt (aft).....
*″ Deck ends .....
15″—9″ Funnel base .....
18″–9″ Turrets
16″ Conning tower & tube

*(Reported as 6″ upper and 4″ lower over vital areas)

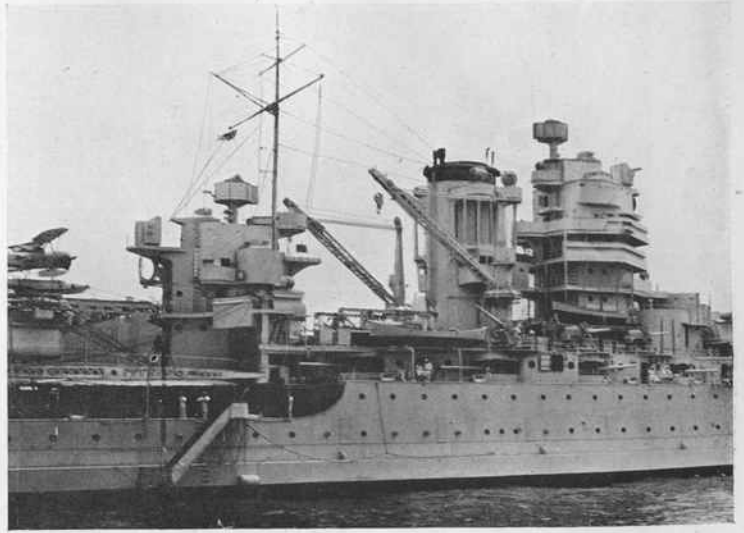


Machinery : Westinghouse geared Turbines. 4 shafts. Boilers : *Idaho* and *Mississippi*, 6 Bureau Express ; *New Mexico*, 4 White-Forster. Designed H.P. : 40,000 = 21·5 kts. Fuel : Oil only, 2,200 tons (pre-alterations figures). Since modernisation speed has been raised to 22–23 kts.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*
Idaho	N.Y.S.B. Co.	Builders	20/1/15	24/3/19
Mississippi	Newport News Co.	„	5/4/15	18/12/17
New Mexico	N.Y. Navy Yard	„	14/10/15	15/8/18

New Mexico — 1934 *Photo Official.*

(Note differences in funnels of these 3 ships.)



Mississippi. — 1934 *Photo, Mr. L. Sprague de Camp.*

(New Mexico Class—3 ships.)

IDAHO	New York Shipbuilding Co.	(June 30th, 1917).
MISSISSIPPI	Newport News	(January 25th, 1917).
NEW MEXICO	New York Navy Yard	(April 23rd, 1917).

Displacement *Standard* — *Idaho* and *New Mexico* 33,400 tons. *Mississippi* 33,000 tons. Complement, 1323

Length — *waterline*, 600 feet. *over all*, 624 feet. Beam, 106¼ feet

Mean draught, Mississippi 29½ ft.; others 29½ feet. *Max.* „ 34 feet

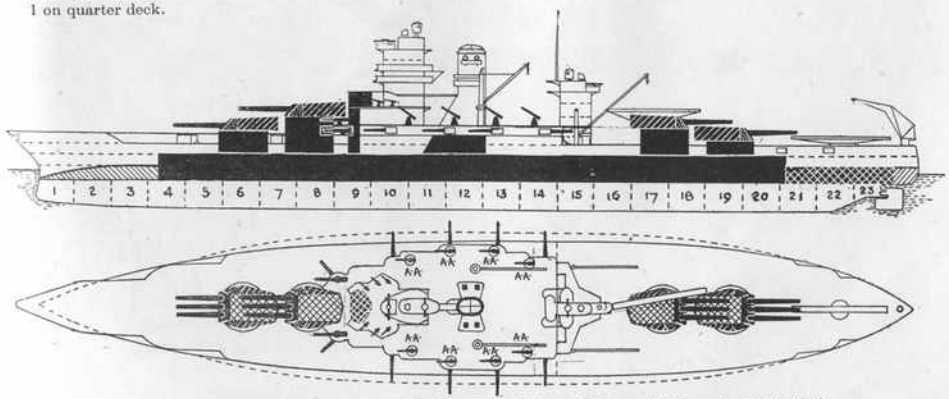
Guns:
12—14 inch, 50 cal., Mk. IV.
12—5 inch, 51 cal.
8—5 inch (A.A.), 25 cal.
4—3 pdr. (saluting) in *Idaho*; 4—6 pdr. in others
12—M.G. AA.

Armour:
14″ Belt (amidships)
8″ Belt (aft)
*″ Deck ends
15″—9″ Funnel base
18″–9″ Turrets
16″ Conning tower & tube

*(Reported as 6″ upper and 4″ lower over vital areas)

Aircraft: 3

Catapults:
1 on "X" turret.
1 on quarter deck.



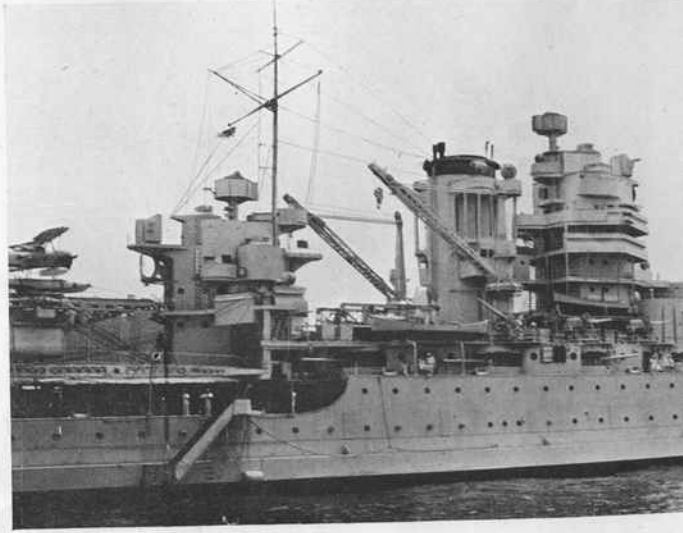
Machinery: Westinghouse geared Turbines. 4 shafts. Boilers: *Idaho* and *Mississippi*, 6 Bureau Express; *New Mexico*, 4 White-Forster. Designed H.P.: 40,000 = 21·5 kts. Fuel: Oil only, 2,200 tons (pre-alterations figures). Since modernisation speed has been raised to 22–23 kts.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*
Idaho	N.Y.S.B. Co.	Builders	20/1/15	24/3/19
Mississippi	Newport News Co.	„	5/4/15	18/12/17
New Mexico	N.Y. Navy Yard	„	14/10/15	15/8/18

New Mexico

1934 *Photo C*

(Note differences in funnels of these 3 ships.)



Mississippi.

1934 *Photo, Mr. L. Sprague de*

IDAHO 1936, *O. W. Waterman*

MISSISSIPPI. *Added* 1935, *courtesy of U.S. Naval Institute, Annapolis, Md.*

ARIZONA. *Added* 1940, *Official.*

(Observe difference in height of C.T. compared with *Pennsylvania.*)

PENNSYLVANIA.
1934 *Photo, Mr. L. Sprague de Camp.*

(Pennsylvania Class—2 Ships).

PENNSYLVANIA (16th March, 1915) & **ARIZONA** (19th June, 1915)
Standard Displacement, 33,100 and 32,600 tons respectively.

Length { *w.l.* 600 feet / *o.a.* 608 feet } Beam, 106 feet, 3 in. { *Mean* draught, 28 feet in *Pennsylvania*; 5 ins. less in *Arizona*. / *Maximum* draught, 33½ feet. }

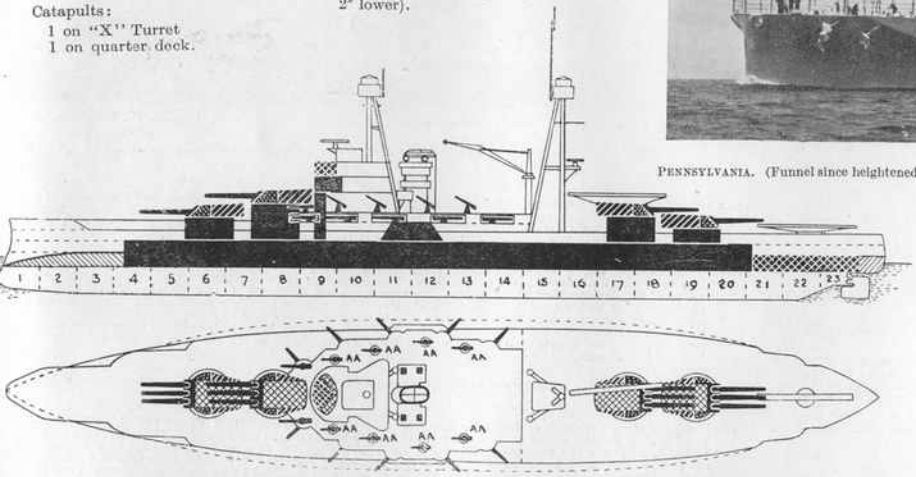
Complement, 1358.

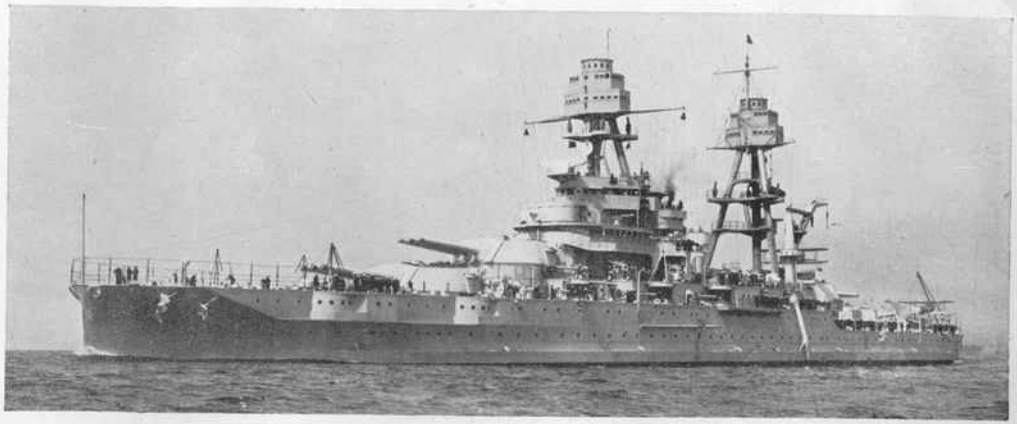
Guns:
12—14 inch, 45 cal.
12—5 in., 51 cal.
8—5 in. (AA.), 25 cal.
4—3 pdr. (saluting).
(Torpedo tubes removed).

Aircraft: 3

Catapults:
1 on "X" Turret
1 on quarter deck.

Armour:
14″ Belt (amidships) .....
8″ Belt (aft) .....
3″ Deck (ends) .....
15″—9″ Funnel base .....
18″—9″ Turrets
16″ Conning tower & tube ...
(Total, 8672 tons.)
6″ deck amidships (4″ upper, 2″ lower).





Pennsylvania. (Funnel since heightened.)

1933 *O. W. Waterman.*

Pennsylvania, showing heightened funnel.

1939, *Bear Photo Service.*

Machinery: *Pennsylvania*, Curtis turbines, L.P. ahead and astern, H.P. astern. *Arizona*, Parsons turbines, L.P. ahead and astern, H.P. astern. In both ships: Westinghouse geared turbines, H.P. ahead and cruising. 4 shafts. Boilers: *Arizona*, 6 Bureau Express. *Pennsylvania*, 1 Bureau Express, 5 White-Forster. Designed H.P. 32,000 = 21 kts. (unaffected by modernisation). Fuel: Oil only, *normal* 2,322 tons (694,830 gallons).

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials Full Power: 12 hrs.*	*Tons Fuel per day* 10—	15—	19—kts.
Pennsylvania	Newport News	Newport News	Oct.'13	June,'16	29,366=21·05	65/—	90/—	—/—
Arizona	New York Yard	New York Yard	Mar.'14	Oct.'16	33,376=21	76/—	167/174	—/309

General Notes.—*Pennsylvania* authorised 1912, as *No. 38*, *Arizona* 1913, as *No. 39*. Both ships are enlarged and improved *Nevadas*. They have proved excellent sea boats, very steady gun platforms, and have proved to be very economical ships. Both ships have undergone extensive reconstruction which has cost $14,800,000. Battery raised a deck and AA. armament increased; tripods fitted, funnel moved further aft; bulges and increased internal protection; additional bridges, and catapults fitted. In appearance differ from *Nevada* and *Oklahoma* in having higher conning tower and bridge which reaches funnel level.

Armour Notes.—Generally as for *Nevada* class. Increase of armour weight due to increased internal protection against submarine explosions and greater length of belt. Armour for each triple barbette, 226½ tons. *Arizona* has cement backing to belt, instead of teak, and armoured fire-control tops.

Gunnery and Fire Control Notes.—14 inch guns mounted in single sleeve, and can be fired as one piece. *Max.* range at 15° elevation reported to be 21,000 yards. Triple positions weigh about 650 tons each (guns, mountings and armour). Turrets are capable of putting 2—3 salvoes a minute through a target at short range practice. Breech blocks worked by hand power. Interior of the shields to 14 inch guns very roomy and well arranged.

(Nevada Class—2 Ships).

OKLAHOMA (March 23rd, 1914) & **NEVADA** (July 11th, 1914).

Standard Displacement 29,000 tons. Complement, both 1301.

Length { *waterline*, 575 feet. / *over all*, 583 feet. } Beam, 107 ft. 11 in. *Mean* draught 27½ feet.

Maximum draught 32½ feet.

Guns:
- 10—14 inch, 45 cal.
- 12—5 inch, 51 cal.
- 8—5 inch, 25 cal. AA.
- 4—3 pdr (saluting) in *Oklahoma*.
- 4—6 pdr. in *Nevada*.
- 8—M.G.

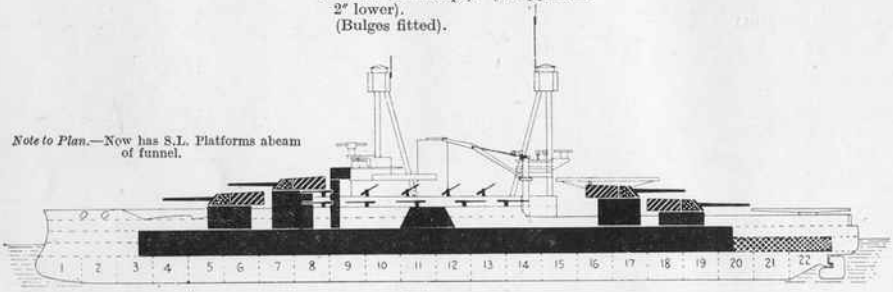
(Torpedo tubes removed.)

Aircraft: 3.
Catapults:
- 1 on "X" Turret.
- 1 on quarter deck.

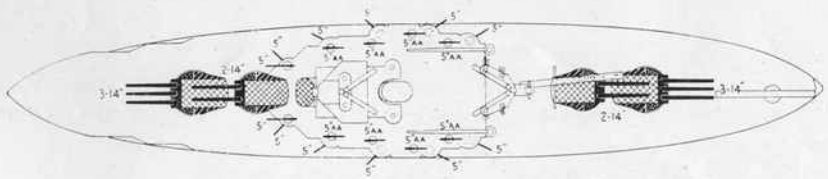
Armour:
- 13½" Belt (amidships)
- 8" Belt (aft)
- 13½" Bulkheads
- 13½" Funnel base
- 3" Deck (ends)
- 18"—9" Triple turrets
- 16"—9" Double turrets
- 16" Conning tower and tube

(Total weight, 7664 tons.)

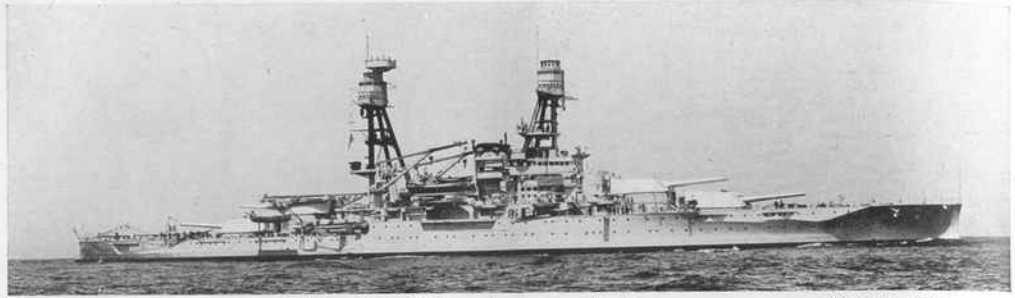
5" Deck (amidships). (3" upper and 2" lower).
(Bulges fitted).



Note to Plan.—Now has S.L. Platforms abeam of funnel.



Machinery: *Oklahoma*, Triple expansion, 4 cylinder; *Nevada*, Parsons turbines with reduction gear. Both: 2 shafts. Boilers: 6 Bureau Express. Designed H.P.: 25,000 = 20·5 kts. Fuel: Oil, 598,400 gallons (2,000 tons), *maximum capacity*. Radius of action: 4,000 miles at full speed, 10,000 miles at 10 kts.



NEVADA. (To distinguish from *Oklahoma*, observe mainmasthead.) 1935, *O. W. Waterman*.

Special Note:

The alterations effected to *Oklahoma* and *Nevada* include substitution of tripod for cage masts, and installation of a deck house, on which, 8—5 inch, 25 cal. guns are mounted. The 5 inch 51 cal. torpedo defence battery is raised from the main deck to the forecastle deck. The funnel is moved aft slightly. Cost of alterations $7,000,000 per ship. The addition of bulges has made them unwieldy at low speeds.

Armour Notes.—Main belt is 400 feet long by 17½ feet wide; 8½ feet of it being below *L.w.l.* Lower edge is 8°. The ends are unarmoured; the battery also. Plates are applied in vertical strakes. Two protective decks, upper 3" flat, lower 1½" flat, 2" on slopes. Barbette bases are 13½" thick, but turrets are only 4½" where below protective deck and behind belt. Barbette shields: 18" port plate for triple positions, 16" port plate for twin positions, 10" sides, 9" back, 5" roof. Sighting slits in conning tower closed by splinter-proof shutters. There is a signalling station protected by 16" armour behind conning tower. These ships marked a new era in naval construction, being the first to embody the "everything or nothing" idea in the matter of protection. No bulkhead between 14 inch guns.

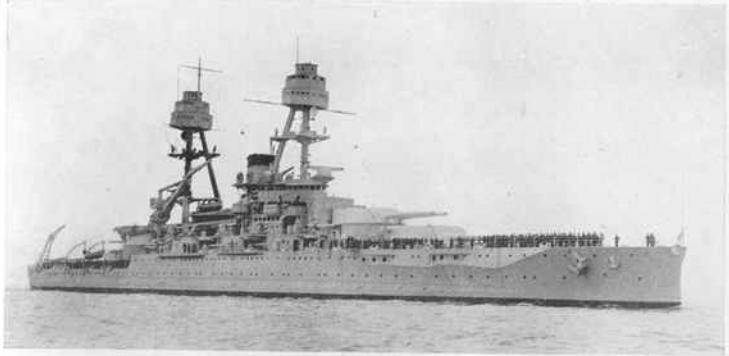
Gunnery Notes.—Guns in the triple turrets in one sleeve, can be fired as one piece. Elevation has been increased to 30.°

Engineering Notes.—Cylinders of *Oklahoma* are H.P. 36·5 inch, I.P. 59·5 inch, L.P. (2) 78 inch. Stroke, 48 inch. Total heating surface, 45,080 sq. feet. Weight of machinery, *Nevada*, 1,860 tons; *Oklahoma*, 1,933 tons. Electric installation in both is 4 generating sets of 300 k.w., 125 volts, 2,400 amp. each. Boilers are in 6 compartments and occupy less than 80 feet of length. Boilers are large tube "Express" type. No superheaters in either ship. Electric-driven f.d. blowers proved too unreliable, and were replaced by steam turbine-driven blowers. All oil fuel carried in double bottom; no wing tanks.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials: (Full Power—12 hrs.)*	*Tons fuel per day: 10 kts.*	*15 kts.*	*19 kts.*
Oklahoma	N.York S.B.Co	N.Y. S.B. Co.	Oct. '12	May, '16	21,703=19·68	77	143	278
Nevada	Fore River Co.	Fore River	Nov. '12	Mar. '16	23,312=20·28	50·5† / 77§	132·5† / 149§	— / 210§

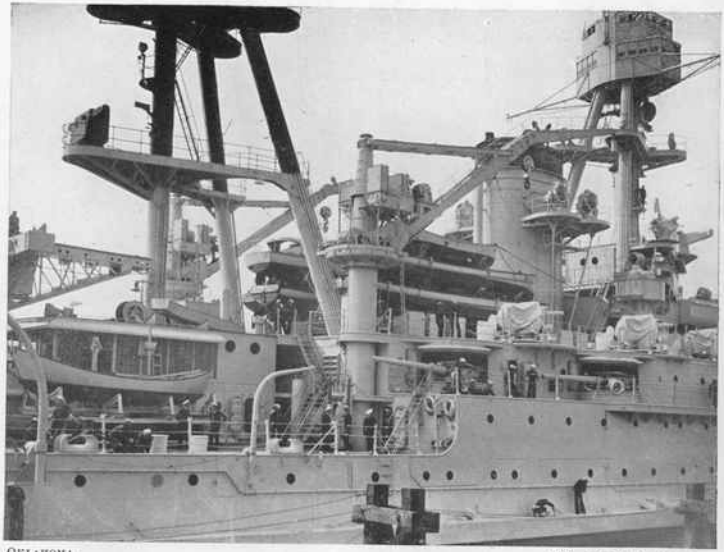
†Cruising turbines. §Main turbines.

General Notes.—Authorised 1911 as *No. 36* (*Nevada*), *37* (*Oklahoma*).



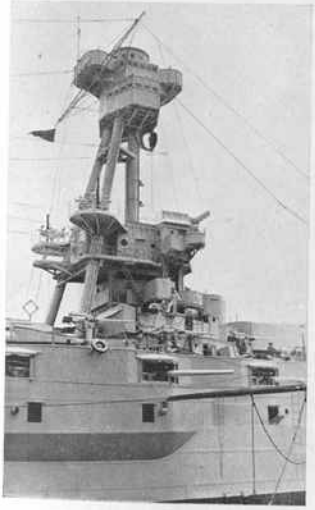
OKLAHOMA.

1936, *Wright & Logan.*



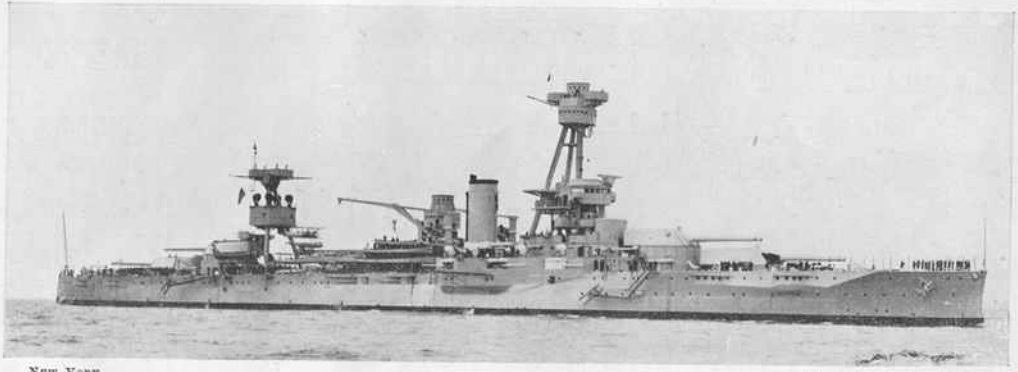
OKLAHOMA.

1936, *Wright & Logan.*



NEW YORK.

1934 *Photo, Mr. L. Sprague de Camp.*



NEW YORK.

1936 *Photo, O. W. Waterman.*

(Texas Class—2 Ships.)

NEW YORK (Oct. 30th, 1912) and **TEXAS** (May 18th, 1912).

Displacement, { *Standard*, 27,000 tons. / *Full load*, 32,000 tons. } Complement, 1314.

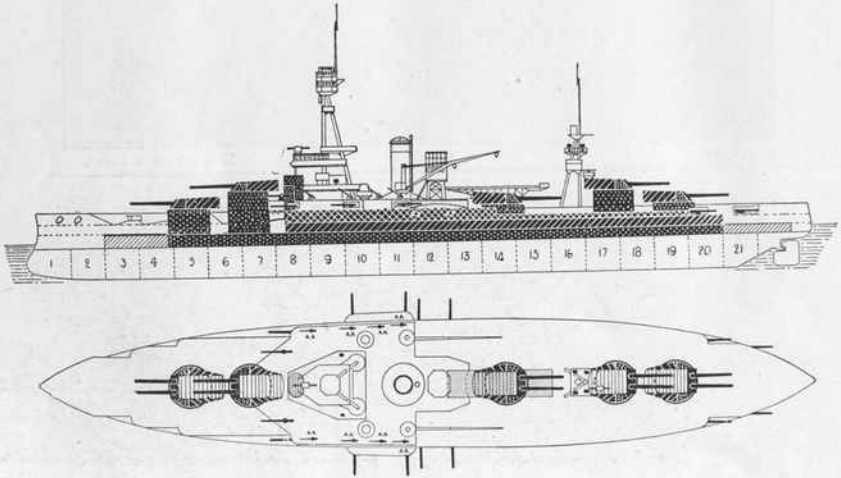
Length (*waterline*), { 566 feet. / Length (*over all*), { 573 feet. } Beam, 106 feet.

Mean draught, 26ft.
Max. „ 31½ ft.

Guns:
10—14 inch, 45 cal.
16—5 inch, 51 cal.
8—3 inch AA., Mk. III.
4—3 pdr. (saluting).
2—1 pdr.
8 M.G.
2 landing.
(Torpedo tubes removed).

Aircraft: 3.
Catapults:
1 on turret amidships.

Armour (Midvale):
12″ Belt (amidships).....
6″ Belt (ends) .....
3″ Deck (since increased)
9″—6″ Upper Belt
14″—8″ Turrets...
12″ Barbettes.....
6″ Battery .....
12″ C.T .....
(Bulges fitted 1926-27).



Machinery: Vertical triple expansion, 4 cylinder. 2 shafts. Boilers: 6 Bureau Express.
Designed H.P. 28,2100 kts. Oil: 5200 tons. Present speed 19 kts.

Texas (To distinguish from *New York*, note forward control top.) 1938, *Wright & Logan.*

The alterations effected in the Battleships of the *Arkansas*, *Texas* classes, include oil burning installation, anti-aircraft defence, increased underwater protection and improved aircraft handling arrangements. All carry catapults. Displacement increased by nearly 3,000 tons.

Gunnery Notes.—New fire control system installed 1926 with tripod foremast. *New York* now has four M.G. in each masthead top. Elevation of 14 inch guns from 15° to 30° has been authorised, which should increase range to about 25,000 yards.

Engineering Notes.—Builders of turbine engines in the U.S. refused to adopt the standards laid down by the Navy Department. Accordingly, in these ships, reciprocating engines were reverted to, to show the turbine builders that the Navy Department was determined to have turbines built to official specification, or else the older type of engines would be taken up again. Cylinders: H.P. 39″, I.P. 63″, L.P. (2) 83″. Stroke: 48″. Weight of machinery: *Texas* 1971 tons: *N.Y.* 2048 tons, both exclusive of electric lighting equipment. Electrical installation: 4 sets each of 300 k.w., 125 volts, 2400 amps., by General Electric Co. Both ships converted to oil burning, and will have main engines and boilers renewed.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials: Full Power.*	*Boilers*	*Best recent speed*
Texas	Newport News	Newport News	Apl.'11	Mar.'14	19·77	Bureau	19
New York	New York Yard	New York Yard	Sept.'11	Apl.'14	20·23	Express	

General Notes.—Authorised 1910 as *No. 34* (*N.Y.*) and *35* (*Texas*). Both ships fitted as flagships. They are slow since refit, hard to handle and bad sea boats in rough weather—wet and rolling so that waves ride the bulges into the amidships casemate. Neither of these battleships is reckoned effective for war purposes, and they will be replaced in due course by new battleships *Washington* and *Indiana*.

(Arkansas Class)

ARKANSAS (N.Y. Shipbuilding Co. Jan. 14th, 1911).

Displacement, { *Standard*, 26,100 tons. / *Full load*, 31,000 tons. } Complement, 1330.

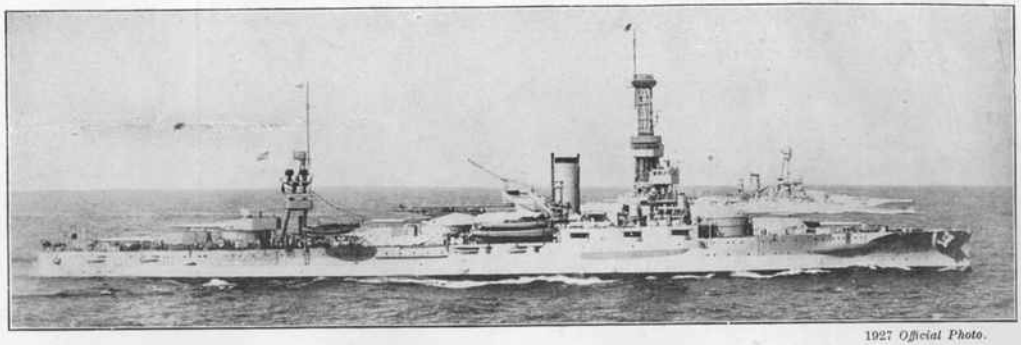
Length { (*w.l.*), 555½ feet. / (*o.a.*), 562 feet. } Beam, 106 feet.

Mean draught, 26 feet.
Max. „ 32 „

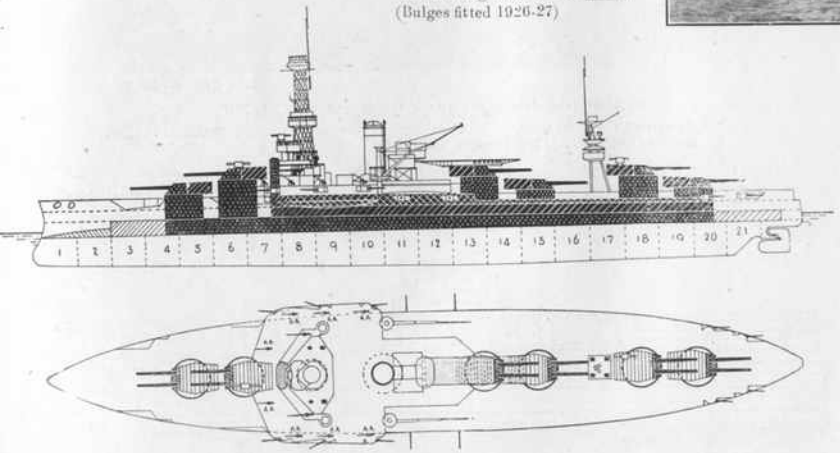
ans:
12—12 inch, 50 cal.
16—5 inch, 51 cal.
8—3 inch AA., Mk III.
4—3 pdr. (saluting).
Torpedo tubes removed).

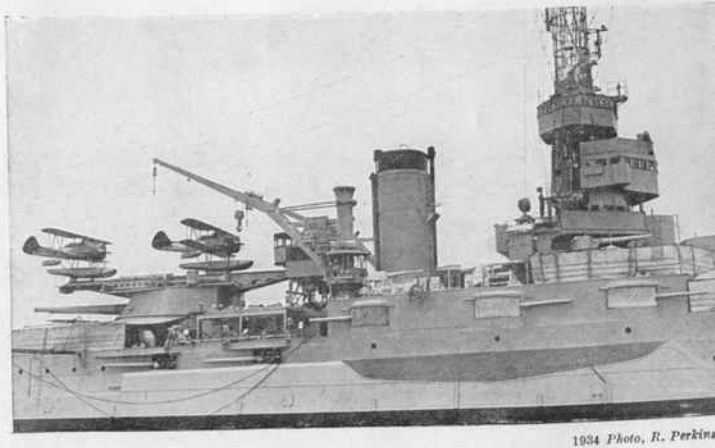
Aircraft: 3
Catapults:
1 on 3rd turret.

Armour (Midvale):
11"—9" Belt amidships
5" Belt (ends)
12"—9" Turrets
11" Turret bases
6½" Battery
12" Conning tower
(Bulges fitted 1926-27)



1927 *Official Photo.*





1934 *Photo, R. Perkins*

Machinery: Parsons turbines. 4 shafts. Boilers: 4 White-Forster. Designed H.P. 28,000 = 20·5 kts. Oil: 5,100 tons. Present speed 19·2 kts.

General Note.—Laid down Jan. 1910 and completed Sept. 1912. Underwent extensive alterations and refit 1925-27 when displacement was increased by 3,000 tons. No longer considered effective for war purposes, and will be replaced by new battleship *North Carolina*.

Gunnery Note.—Elevation of 12 inch guns from 15° to 30° has been authorised. Present range said to be only about 15,000 yards.

A sister ship **WYOMING** has been de-militarised according to the terms of the Naval Treaty. Nos. 3, 4, 5 turrets removed. She is employed as a Training Ship (vide a later page).

(Essex Class—11 Ships.)

ESSEX, BON HOMME RICHARD, INTREPID, KEARSARGE, and 7 more.

Displacement: *circa* 26,000 tons. Complement: Over 2,000.
Dimensions: Not reported. Aircraft: 100.

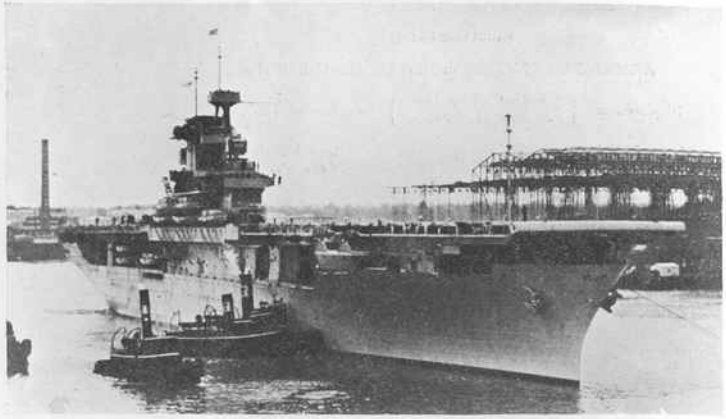
Guns:
8—5 inch 38 cal. (dual purpose).
Sundry smaller guns.

Inclusive cost (with armament, etc.) expected to be about $60,000,000 per ship.

Name	*Builder*	*Laid down*
Essex *B. H. Richard* *Intrepid* *Kearsarge* 3 ships (CV 14–16)	Newport News Co.	*To be* 1941
4 ships (CV 17–20)	Bethlehem Co., Quincy	

1940, *courtesy "Our Navy".*

(*Another view of this ship in Addenda.*) 1940, *Theo. N. Silberstein.*



1940, *Theo. N. Silberstein.*

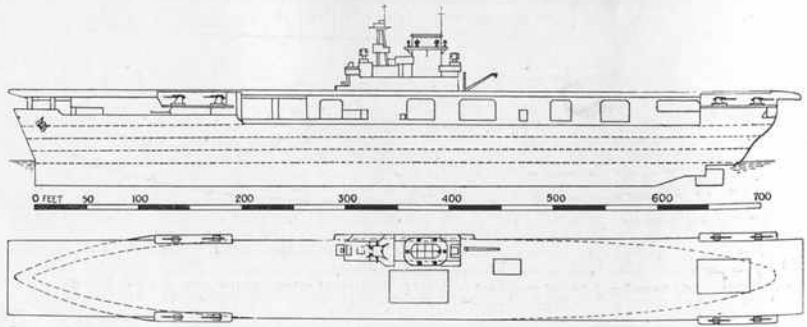
WASP (Bethlehem Steel Co., Quincy, April 4, 1939).

Displacement: 14,700 tons. Complement (including flying personnel): 1,800.
Dimensions: 688 (*w.l.*), 739 (*o.a.*) × 20 feet (*mean* draught).

Guns:
8—5 inch 38 cal. (dual purpose).
40 smaller.

Aircraft: 72
(80 can be carried)

Armour:
As in *Ranger*, on a later page.



Machinery: Parsons impulse reaction geared turbines. 2 shafts. S.H.P.: 55,000 = 30 kts.
Boilers: Yarrow (by builders).

Notes.—Laid down April 1, 1936, under 1935–36 Programme, and completed April 25, 1940. Cost $20,737,000 exclusive of armament. Hull form resembles that of *Ranger*, but superstructure follows the *Enterprise* design, though funnel is of lighter type.

Recognition Letters of U.S. Aircraft Carriers
(painted prominently on after end of flight deck):
RANGER, RNGR. LEXINGTON, LEX. SARATOGA, SARA.
ENTERPRISE, EN; YORKTOWN, YT.

ENTERPRISE (Oct. 3, 1936). **HORNET** (building).
YORKTOWN (April 4, 1936).

Displacement: 19,900 tons. Complement, 2,072 (including flying personnel).

Length: 761 feet (*w.l.*), 809½ feet (*o.a.*). Beam, 83½ feet. Draught, 21⅓ feet (*mean*).

Guns:
8—5 inch 38 cal. (dual purpose).
16—1·1 inch M.G. A.A.
16 smaller M.G.

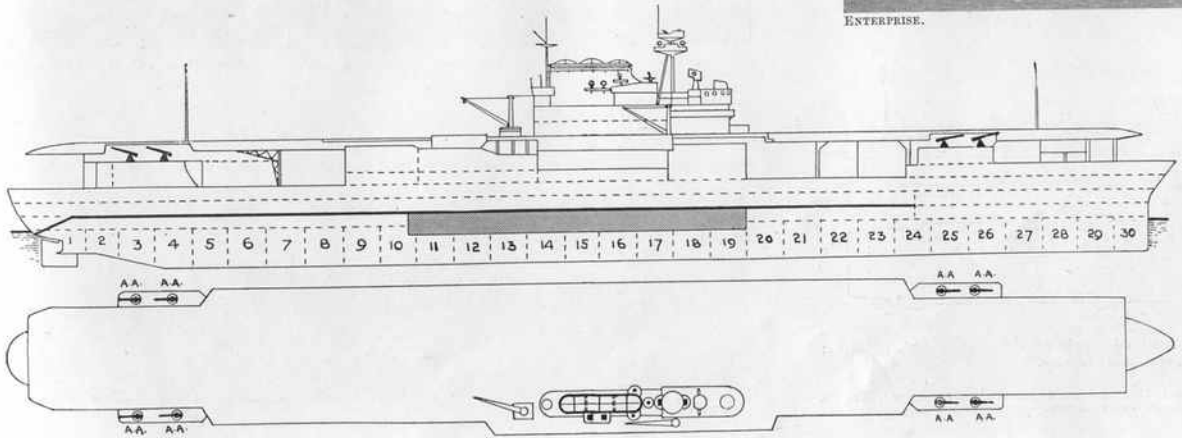
Aircraft:
81 (space for over 100).

Armour: A patch of side armour at water line over machinery and boiler spaces (unofficially reported to be 4") and a heavy protective deck.

YORKTOWN (Note "Y" on funnel). 1939, *Theo N. Silberstein*

ENTERPRISE. 1938, *Official, courtesy "Our Navy."*

Note to Plan.—This shows starboard beam to illustrate details of funnel, etc.



Machinery: Geared turbines. S.H.P.: 120,000 = 34 kts. (exceeded on trials). Boilers: 9 Babcock & Wilcox Express type.

Name	*Builder*	*Laid down*	*Completed*
Enterprise	Newport News Co	16 July, 1934	18 July, 1938
Yorktown		21 May, 1934	1938
Hornet		25 Sept. 1939	1942

General Notes.—Owing to serious mechanical defects, involving replacement of the reduction gearing and over 1,200 boiler tubes, completion of *Yorktown* was postponed until late in 1938. *Enterprise* was similarly delayed. Said to have cost over $21,000,000 apiece, without armament, though contract figure was $19,000,000. *Hornet* ordered end March, 1939. To cost $31,800,000.

Aircraft Notes.—Aircraft can be catapulted from hangar deck as well as from flight deck, thus increasing the number that can be put into the air at short notice.

RANGER (Newport News S.B. Co., Feb. 25, 1933). Displacement: 14,500 tons. Complement (including flying personnel) 1,788, of whom 162 are commissioned officers. Dimensions: 728 (*w.l.*), 769 (*o.a.*) × 80 1/2 × 19 3/4 ft. (*mean*).

RANGER.

Added 1935, *courtesy U.S. Naval Institute.*

Guns:

8—5 inch 25 cal. AA.
40 smaller

Aircraft:

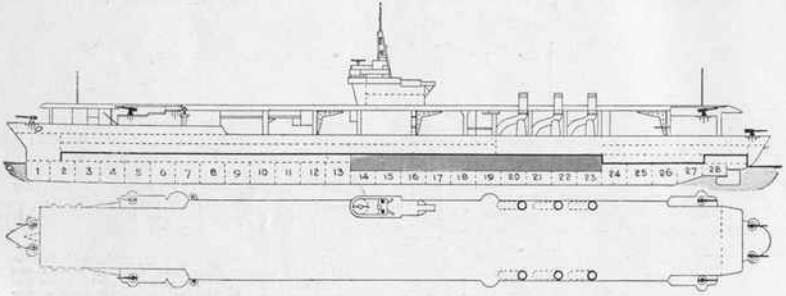
72, of which 4 squadrons are bomber fighters, the remainder amphibians. (81 usually carried.)

Armour:

1" Flight Deck
Double Hull and internal subdivision, but no side armour beyond small patch shown.

Added 1937, *O. W. Waterman.*

Note to Plan.—Guns shown on forecastle and q.d. now mounted on superstructure over sections 6 and 26—27, as shown in 1936—37 photos.



Machinery: Geared Turbines (high pressure Curtis; low pressure Parsons). 2 shafts. S.H.P.: 53,500 = 29 1/4 kts. Boilers: 6 Babcock & Wilcox sectional Express.

General Notes.—Laid down Sept. 26, 1931. Completed June 4, 1934. Trials: 58,700 = 30·35 kts. (*max.*). The six funnels can be lowered to horizontal position as in aircraft tender *Langley*.

With funnels lowered.

1936, *O. W. Waterman.*

LEXINGTON (3rd Oct., 1925.)

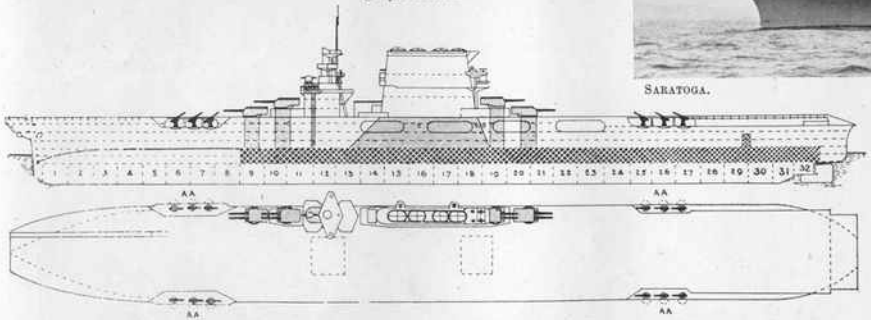
SARATOGA (7th April, 1925.)

Displacement, 33,000 tons. *Full load* about 40,000 tons.
Complement (including flying personnel): 2,122 of whom 169 are Commissioned Officers.
Length (*w.l.*) 830 ; (*pp.*), 850 ft.; (*o.a.*) 888 ft.
Beam, 105½ ft. (*extreme*).
Draught, 24 feet 2 inches (*mean*). 32 feet (*max.*)

Guns:
8—8 inch, 55 cal.
12—5 inch AA., 25 cal.
4—6 pdr. saluting.
8—50 cal. M.G.

Aircraft:
81 *normal.*
90 *max.*
Catapult, **1.**

Armour:
Unofficially reported to have 6″ Belt, 600 feet in length, and 3″ deck. Triple hull and bulge protection.



Machinery: G.E. turbines, electric drive. 4 shafts. Designed S.H.P.: 180,000 = 33·25 kts.
Boilers: *Lexington*, 16 Yarrow; *Saratoga*, 16 White-Forster. Oil fuel: 7,000 tons.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*
Lexington	Fore River S.B. Co.	Gen. Elec. Co.	8/1/21	Dec.'27	153,600 = 33·04	Yarrow
Saratoga	New York S.B. Co.		25/9/20	Nov.'27	138,375 = 33·42	White-Forster

Special Note.—It is intended to reconstruct these 2 ships at a cost of $15,000,000 for the two. Each will be modernised as regards AA. and gas defence, damage control and aircraft operation. Flight deck to be widened at the bow by 60 ft. A bulge to be built along port side, nearly the full length of the ship and adding 2½ feet to the beam, to balance the weight of the island superstructure. This will make it possible to utilise the full quantity of oil fuel carried, instead of retaining some as ballast. This will increase deadweight by 450/500 tons. but decrease displacement by about 2,000 tons, as ship will stand higher out of water. Work to begin on *Saratoga* Jan. 1, 1941 and on *Lexington* July 1, 1941.

General Notes.—These two ships were originally authorised in 1916 for construction as Battle Cruisers of 35,300 tons, with *seven* funnels and boilers disposed on two deck levels. After the War, plans were to a large extent re-cast, v. F.S. 1919–1921 Editions. Total cost, with aircraft, was over $45,000,000 each.

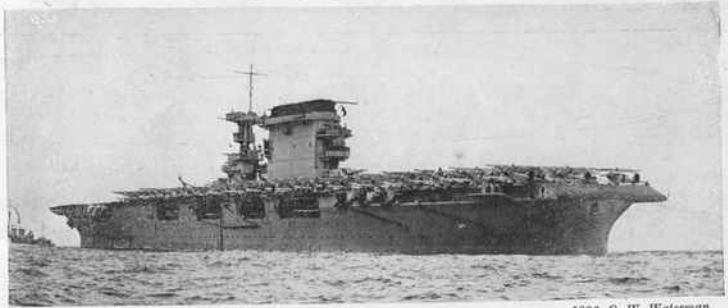
As Aircraft Carriers it is believed the waterline protection is retained and that deck protection has been heavily reinforced. The general lines of the hull remain unaltered, and the special system of underwater protection is also adhered to. Flight deck is 880 feet long, from 85 to 90 feet in width, and 60 feet above waterline. 8-inch guns have 30° elevation and range to 28,000 yards. Depth of hull from keel to flight deck is 74½ feet, and funnel rises 79 feet above flight deck.

Handling of Aircraft.—The Landing Net is placed just before the recessed stern portion of the Flight Deck; it is about 100 feet long. Before it is a large T-shaped lift for moving aircraft from Flight to Hangar Deck. There is another and similar T-shaped lift abeam of the mast and C.T. At the bow is a catapult, 155 feet in length, capable of launching the heaviest aircraft into the air at flying speed with a travel of 60 feet. Before the C.T. and abaft the Navigating Officers' Deck House, and right over to starboard beam, are powerful derricks for lifting seaplanes and flying boats from the water. As a result of experiments with *Langley*, certain modifications were made enabling planes to land safely on deck in any weather.

SARATOGA. 1936, *O. W. Waterman*

Engineering Notes.—Each boiler 11,250 H.P. Steam pressure, 295 lbs. to sq. inch. Fuel consumption estimated at 2,000 tons daily under full power. Machinery is the most powerful ever installed in a warship; it is all controlled, so far as main engines are concerned, from one central position. There are eight propelling motors of 22,500 H.P. (two to each of the four shafts), speed 317 R.P.M. On trials, it is stated that 97% of designed speed was obtained with 85% of designed power. *Lexington* did the voyage from San Diego to Honolulu (2,228 miles) at an average speed of 30·7 kts. A speed of 34·5 kts. was maintained for one hour by the latter ship with S.H.P 210,000. Average displacement of both ships on trials was about 39,000 tons.

LEXINGTON, showing altered shape of bow. 1939, *Theo. N. Silberstein.*



LEXINGTON. (Platform added around funnel top) 1936, *O. W. Waterman*

New Construction

Note.—10 more heavy cruisers (no specific details published) were ordered in Sept. 1940 from New York S. B. Corpn. (4 ships); Bethlehem Co., Quincy (4); and Newport News Co. (2).

(Baltimore Class—4 Ships.)

BALTIMORE, BOSTON, PITTSBURGH, ST. PAUL.

Displacement: 13,000 tons.
Dimensions not reported.

Guns:
9—8 inch.
8—5 inch AA.

Aircraft: 4
Catapults: 2

Armour:
Will be more extensive than in *Wichita*.

Machinery: Geared turbines. Speed: 33 kts.

Notes.—All ordered from Bethlehem Steel Co., Quincy, and will be laid down in 1941. Are to be enlarged and improved editions of *Wichita*. Cost, $23,618,000 each.

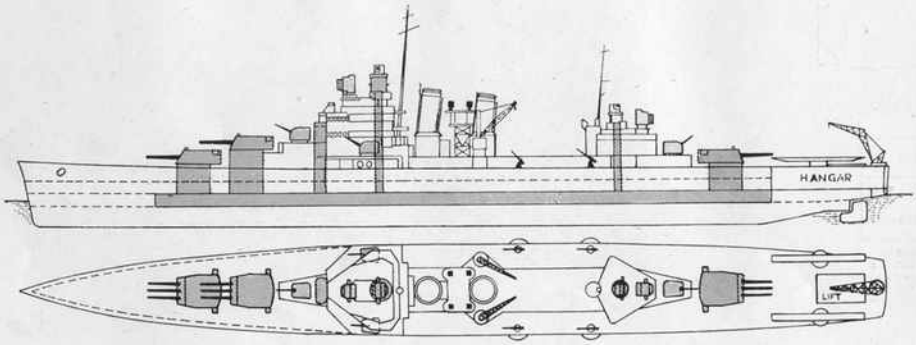
WICHITA (Nov. 16, 1937).

Displacement: 9,324 tons (*standard*). Complement: 600.
Length, 600 feet (*w.l.*), 614 feet (*o.a.*). Beam, 61¾ feet. Draught, 19⅞ feet (*mean*).

Guns:
9—8 inch, 55 cal.
8—5 inch AA.
2—3 pdr.
10 smaller

Aircraft: 4
Catapults: 2

Armour:
1½″ Side (fore and aft)
5″ Side (amidships)
3″ + 2″ Decks
5″—6″ Turret faces
3″ Turret sides and backs
8″ C.T.

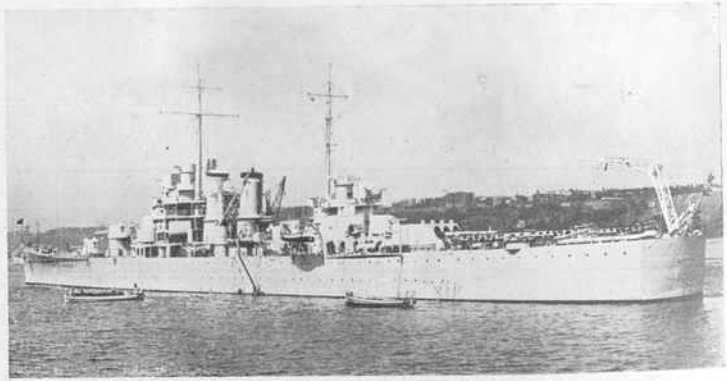


Machinery: Westinghouse geared turbines. 4 shafts. S.H.P.: 100,000 = 32·5 kts. Boilers: 8 Babcock & Wilcox. Fuel: 1,650 tons.

Notes.—Though originally to have been a unit of *Minneapolis* class, this ship was completed as a modified *Brooklyn* with 8 inch guns.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*
Wichita	Philadelphia Navy Yard	Westinghouse Co.	Oct. 28, 1935	March, 1939

Wichita 1939, "*Ships and Aircraft.*"



Wichita. 1939.

(Minneapolis Class—7 Ships)

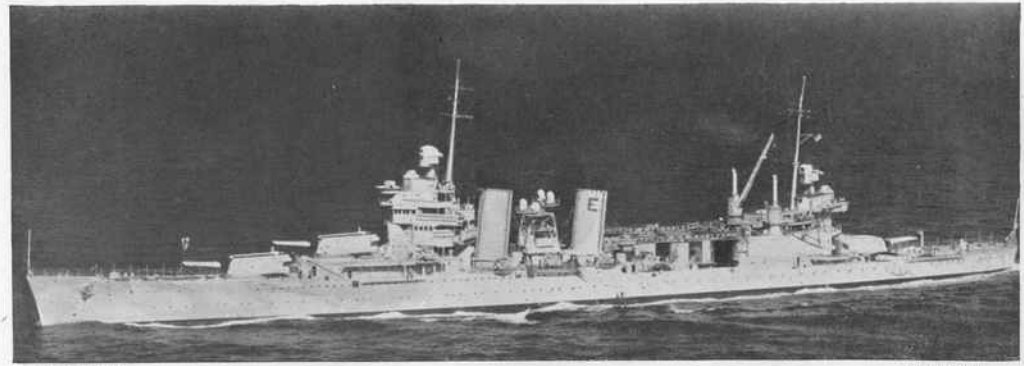
ASTORIA (Dec. 16, 1933).
MINNEAPOLIS (Sept. 6, 1933).
NEW ORLEANS (April 12, 1933).
TUSCALOOSA (Nov. 15, 1933).
SAN FRANCISCO (March 9, 1933).
QUINCY (June 19, 1935).
VINCENNES (May 21, 1936).

Displacement: 9,950 tons, except *Tuscaloosa*, 9,975, *Vincennes*, 9,400 and *Quincy*, 9,375 tons.

Complement, 594.

Dimensions: 574 (*w.l.*), 588 (*o.a.*) × 61¾ × 19 11/16 feet (*mean*), 23½ (*max.*).

Quincy and *Vincennes*: 569 (*w.l.*), 588 (*o.a.*) × 61⅞ × 18⅝ feet (*mean*).



Minneapolis

1940, *Official*.

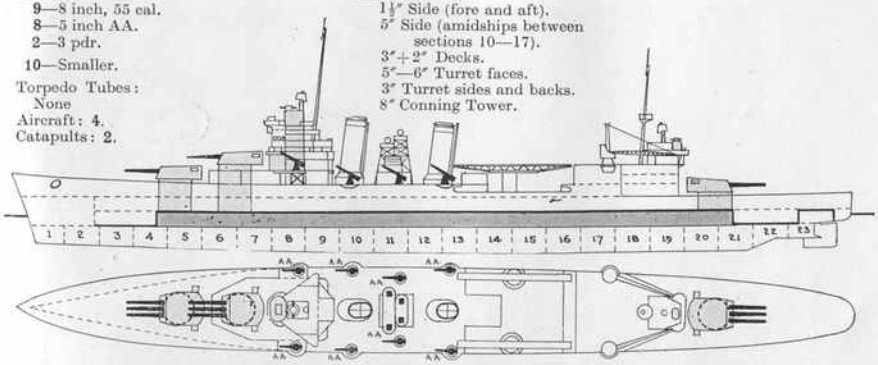
Guns:
9—8 inch, 55 cal.
8—5 inch AA.
2—3 pdr.
10—Smaller.

Torpedo Tubes:
None

Aircraft: 4.

Catapults: 2.

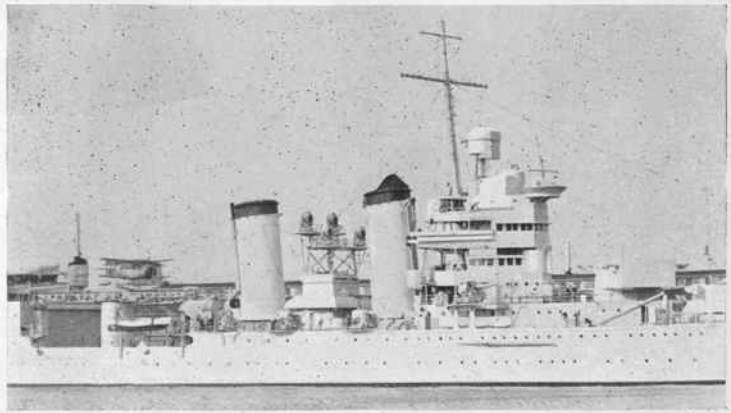
Armour
1½″ Side (fore and aft).
5″ Side (amidships between sections 10—17).
3″+2″ Decks.
5″—6″ Turret faces.
3″ Turret sides and backs.
8″ Conning Tower.



Machinery: Parsons geared turbines in *Tuscaloosa*, *Quincy*, *Vincennes*; Westinghouse in others. 4 shafts. S.H.P.: 107,000 = 32·7 kts. (32 kts. in 2 later ships). 8 Babcock & Wilcox boilers. Fuel: 1,650 tons.

General Notes.—In this class, the forecastle deck has been extended to the second funnel with a slight lowering of the freeboard; the bow form altered and overhang dispensed with; bridges raised and pole rig substituted for tripods; AA. guns re-distributed; hangars moved aft and extended to shelter deck, all the boats excepting the lifeboats being stowed on top to avoid interference with the AA. guns. These ships possess better protection than the *Portland* class as armour has been distributed to better advantage on the new design. The utmost economy has been effected in construction, electric welding having been employed extensively and weight saved in every direction even to the extent of using aluminium paint internally. 8 inch guns and mountings are of a lighter model and the weight so saved has been put into armour. There is a certain amount of plating on the bridgework, not shown in the plan. Cost, $15,000,000 apiece.

Gunnery Notes.—8 inch guns elevate to 45°



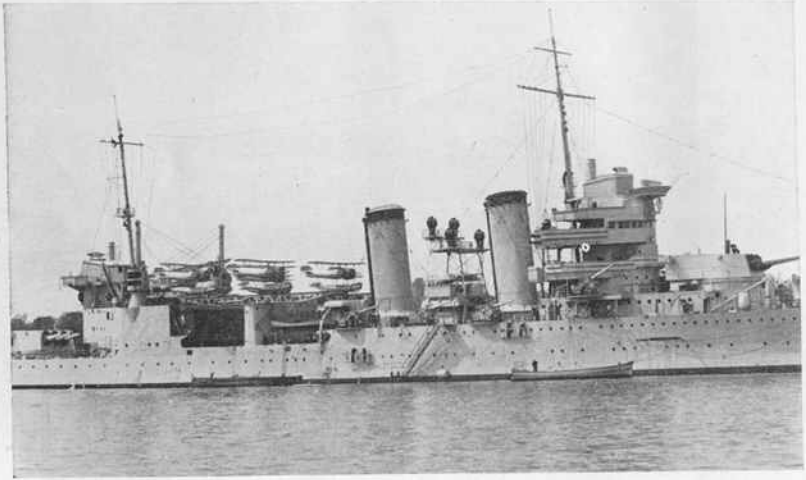
Tuscaloosa.

1940, *Theo. N. Silberstein*.

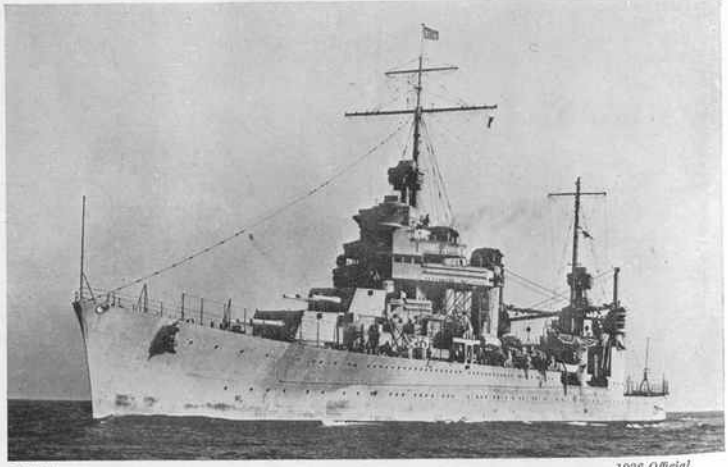
Name	*Builders*	*Machinery*	*Laid down*	*Completed*
Astoria	Puget Sound Navy Yard	Westinghouse Co.	1/9/30	1/6/34
Minneapolis	Philadelphia Navy Yard	Do.	27/6/31	20/6/34
New Orleans	New York Navy Yard	Do.	14/3/31	18/4/34
Tuscaloosa	New York S.B. Corp.	N.Y.S.B. Corp.	3/9/31	17/8/34
San Francisco	Mare Isld. Navy Yard	Westinghouse Co.	9/9/31	23/4/34
Quincy	Bethlehem Co. Quincy	Bethlehem Corp.	15/11/33	9/6/36
Vincennes	Bethlehem Co. Quincy	Do.	2/1/34	24/2/37

TUSCALOOSA. (Now has cinder screen on fore funnel). 1935, *O. W. Waterman.*

(*For particulars of these ships, see preceding page.*)



NEW ORLEANS. 1934 *Photo, Registrator Ossi Janson.*



QUINCY 1936 *Official.*
(Funnels in this ship and *Vincennes* are slightly thinner than in preceding ships.)

(Portland Class—2 Ships).

PORTLAND (May 21, 1932). (Bethlehem Steel Co., Quincy.)

INDIANAPOLIS (Nov. 7, 1931). (New York S.B. Co.)

Standard Displacement: 9,800 and 9,950 tons respectively. Complement: 581 (597 as flagship).

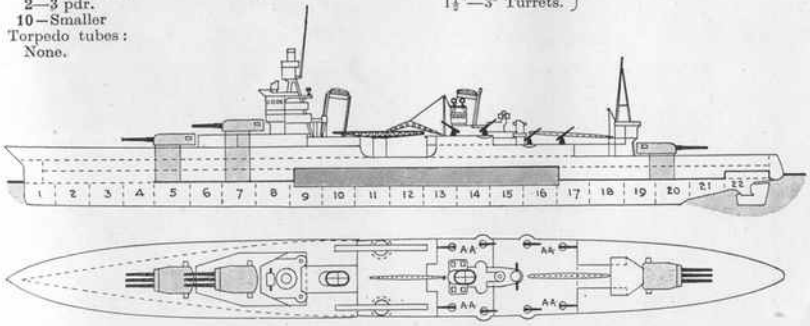
Dimensions: *Indianapolis*, 584 (*w.l.*), 610¼ (*o.a.*) × 66 × 17½ feet (*mean*). *Portland*, 582 (*w.l.*), 610¼ (*o.a.*) × 66 × 17 7/16 feet (*mean*).

Portland. 1940, *Theo. N. Silberstein.*

Guns:
9—8 inch, 55 cal.
8—5 inch AA.
2—3 pdr.
10—Smaller
Torpedo tubes:
None.

Aircraft:
4 and 5, respectively.
Catapults: 2.

Armour: (Not Official.)
3″—4″ Vert. Side
2″+2″ Decks.
1½″—3″ Turrets.



Machinery: Parsons geared turbines. 4 shafts. S.H.P. 107,000 = 32·7 kts. 8 White-Forster boilers in *Indianapolis*, 8 Yarrow in *Portland*.

General Notes.—These ships follow the general design of the *Augusta* class with alterations in weight distribution to improve stability. Some 40 tons of plating has been spread over the bridge work, which is higher than in *Augusta*, with a 30 feet reduction in the height of the masthead control top. *Portland* laid down Feb. 17, 1930, completed Feb. 23, 1933. *Indianapolis* laid down March 31, 1930, and completed November 15, 1932.

Portland used to be a bad roller until fitted with bilge keels. *Indianapolis* did not suffer from this trouble, her extra displacement having a steadying effect. Machinery of both ships supplied by builders.

Portland 1934 *Photo.*

U.S.A.—Heavy Cruisers

(Northampton Class—6 ships).

AUGUSTA (Feb. 1st, 1930). **CHESTER** (July 3rd, 1929). **CHICAGO** (Apr. 10th, 1930).
HOUSTON (Sept. 7th, 1929). **LOUISVILLE** (Sept. 1st, 1930). **NORTHAMPTON** (Sept. 5th, 1929).

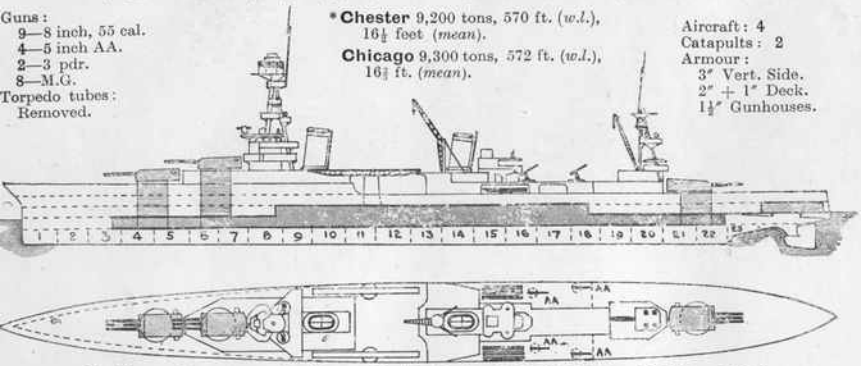
Standard displacement, 9,050 tons.* Complement, 691/795.

* Dimensions: 569 (*w.l.*), 600¼ (*o.a.*) × 66 × 16½ feet (*mean*), 23 feet (*maximum*).

Guns:
9—8 inch, 55 cal.
4—5 inch AA.
2—3 pdr.
8—M.G.
Torpedo tubes:
Removed.

***Chester** 9,200 tons, 570 ft. (*w.l.*), 16½ feet (*mean*).
Chicago 9,300 tons, 572 ft. (*w.l.*), 16¾ ft. (*mean*).

Aircraft: 4
Catapults: 2
Armour:
3″ Vert. Side.
2″ + 1″ Deck.
1½″ Gunhouses.



Machinery: Parsons geared turbines. 4 shafts. Designed S.H.P. 107,000 = 32·7 kts. 8 White-Forster boilers. Radius: 13,000 miles at 15 kts. Fuel: 1,500 tons.

General Notes.—Authorised 1926–27 under Act of December, 1924, as Nos. 26–31. The previous class having worked out at 9,100 tons only, the dimensions were increased and a forecastle deck added. Weight was saved by reducing and re-grouping the armament, while a certain amount of extra protection was provided. Because of vibration in the *Pensacola* the hull was stiffened to try and overcome this defect. Owing to the centre of gravity being placed too low, they were inclined to roll at low speed until fitted with bigger bilge keels. Four planes are carried inside the large hangars amidships, which can accommodate six aircraft if required. *Houston*, *Augusta* and *Chicago* are fitted as flagships and extra accommodation has been secured by extending the forecastle aft to the catapult. When first completed, these ships suffered from cracked sternposts, but the last of these defective sternposts was replaced in 1934.

Gunnery Notes.—Elevation of 8 inch guns, 45°. Control very accurate.

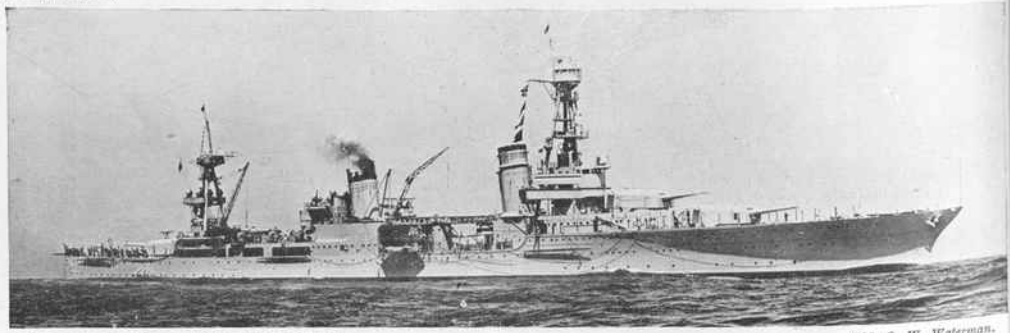
Engineering Notes.—Heating surface, 95,040 sq. feet. Machinery weighs 2,161 tons. 4 Turbo generator sets; 250 kilo-watts each; 120—240 volts; built by General Electric Co. There are 4 boiler rooms.

Special Note.—Torpedo Tubes have been removed and additional AA. guns mounted on the hangar. *Chicago's* modernisation completed Dec., 1935.

Name	*Builders*	*Machinery*	*Laid down*	*Completed*	*Trials*
Augusta	Newport News Co.	N.N. Co.	2/7/28	Jan., 1931	33·11
Chester	New York S.B. Cpn.	N.Y.S.B.C.	6/3/28	June, 1930	33·04
Chicago	Mare Island Navy Yard	G.E. Co.	10/9/28	March, 1931	—
Houston	Newport News Co.	N.N. Co.	1/5/28	June, 1930	33·02
Louisville	Puget Sound Navy Yard	P.S.N.Y.	4/7/28	March, 1931	32·74
Northampton	Bethlehem Steel Co., Quincy	Bethlehem	12/4/28	May, 1930	33·10

Chicago 1940, *Theo. N. Silberstein.*

Louisville (*Chester* similar). 1940, *Theo. N. Silberstein.*



Northampton. (Observe heightened fore funnel). 1935, *O. W. Waterman.*

Heavy Cruisers—*continued.*

(Pensacola Class).

PENSACOLA (April 25th, 1929), **SALT LAKE CITY** (Jan. 23rd, 1929).

Displacement, 9,100 tons.

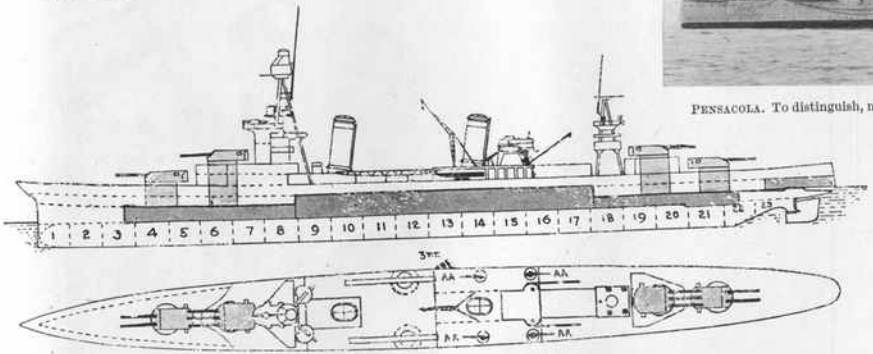
Complement, 663.

Length (*w.l.*) 558 feet; *o.a.*, 585½ feet. Beam, 65¼ ft.

Mean draught (at *normal* displacement), 16 ft. 2 in. *Max.* draught, 22 ft.

Guns:
10—8 inch, 55 cal.
4—5 inch, 25 cal. AA.
2—3 pdr.
Torpedo tubes: Removed.
Aircraft: 4.
Catapults 2.

Armour:
3″ side.
2″+1″ deck.
1½″ gunhouses.



Machinery: 4 sets of Parsons geared Turbines. Cramp type, with de Laval single reduction gearing. 4 shafts. Designed S.H.P. 107,000 = 32·7 kts. 8 White-Forster boilers, working pressure reported as 300 lbs. per square inch. Radius of action: 13,000 miles at 15 kts. Fuel: 1500 tons.

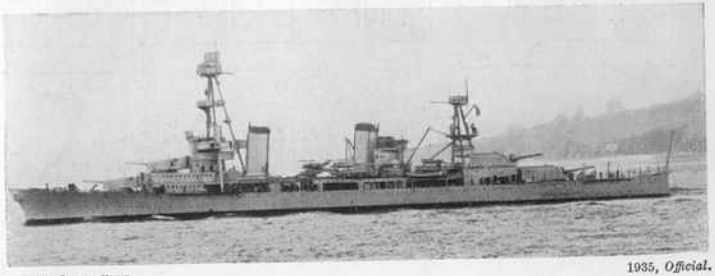
General Notes.—Laid down under Act of December 18, 1924. Tons per inch immersion, 60·7. Utmost economy in weights practised in design and construction. Aluminium alloy fittings replacing steel and aluminium paint is used internally. Welding has been employed wherever possible instead of riveting. They suffer from lack of freeboard, but no longer vibrate, although they roll at low speeds. Above 20 kts. they are extremely steady even in bad weather.

Gunnery Notes.—The 8in. 55 cal. guns, have an elevation of 45°: fore control station at the mast head is about 120 feet above w.l.: the after control is abaft second funnel, and AA. control on fore bridge.

Engineering Notes.—Heating surface, 95,000 square feet. Machinery weighs 2,161 tons. Can steam at 30 kts. with 60 per cent H.P. There are 2 engine and 2 boiler rooms, the outboard shafts coming from the foremost engine rooms.

Name	*Builders*	*Machinery*	*Laid down*	*Completed*	*Trials*
Pensacola	New York N. Yd	N.Y.S.B. Cpn.	Oct. 1926	6 Feb., '30	=32·66
Salt Lake City	New York S.B. Cpn.		June 1927	11 Dec., '29	107,746=32·78

Pensacola. To distinguish, note position of main topmast. 1935 *Photo, O. W. Waterman.*



Salt Lake City. 1935, *Official.*

(Cleveland Class—13 Ships).

Note.—17 more light cruisers (particulars not stated) were ordered in Sept. 1940 from Bethlehem Co., Quincy (2 ships); Bethlehem Co., San Francisco (4); New York S.B. Corpn. (6); and Federal S.B. & D.D. Co. (5)

CLEVELAND, COLUMBIA, DENVER, MONTPELIER, AMSTERDAM, SANTA FE, TALLAHASSEE, BIRMINGHAM, MOBILE, FLINT, PASADENA, SPRINGFIELD, TOPEKA.

Displacement: 10,000 tons. Complement: 888.
Length, 600 feet (*w.l.*). Beam, 61½ feet. Draught, 20 feet (*mean*).

Guns:
12—6 inch
(Unofficial reports)

Aircraft:
4

Armour:
Probably similar to *Helena* and *St. Louis*.

Machinery: Geared turbines. Designed speed over 33 kts. Cost will approach $18,000,000 each.

Programme	*Name*	*Builders & Machinery*	*Laid down*	*Completed*	*Programme*	*Name*	*Builders & Machinery*	*Laid down*	*Completed*
1939	*Cleveland*	New York S.B. Corp.	1/7/40	*To be* 1943	1940	*Birmingham*	Newport News Co.	1941	*To be* 1944
	Columbia		19/8/40			*Mobile*			
1940	*Denver*		1940			*Flint*	Bethlehem Co., Quincy	1941	1944
	Montpelier		1940			*Pasadena*			
	Amsterdam		1941	*To be* 1944		*Springfield*			
	Santa Fe		1941			*Topeka*			
	Tallahassee		1941						

(Atlanta Class—4 Ships).

ATLANTA, JUNEAU, SAN DIEGO, SAN JUAN.

Displacement: 6,000 tons. Complement:
Length, 541 feet. Beam, 52 feet. Draught, not reported.

Guns:
12—5 inch, 38 cal., (dual purpose)
12 smaller.

Aircraft:
2 or 3, with catapult.

Armour:
3½″ Side
2″ Deck

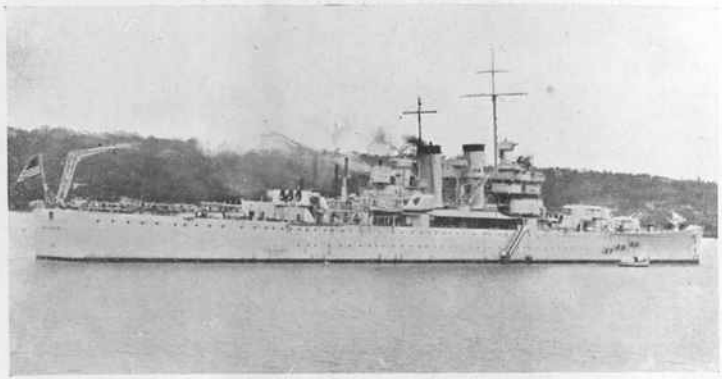
Torpedo Tubes:
6—21 inch
(in triple deck mountings)

Machinery: Geared turbines. Designed speed: 38 kts.

Name	*Builders*	*Machinery*	*Laid down*	*Completed*
Atlanta	Federal S.B. Co., Kearny	Builders	22/4/40	*To be* 1943
Juneau			27/5/40	
S. Diego	Bethlehem Steel Co., Quincy		27/3/40	
S. Juan			15/5/40	

Notes.—All belong to 1938 Programme. Are believed to be designed to act as flagships of Destroyer Flotillas. Cost will exceed $13,000,000 apiece, without armament.

(*For particulars of these ships, see following page.*)



St. Louis. (*Helena* similar.) 1940, *Theo. N. Silberstein.*

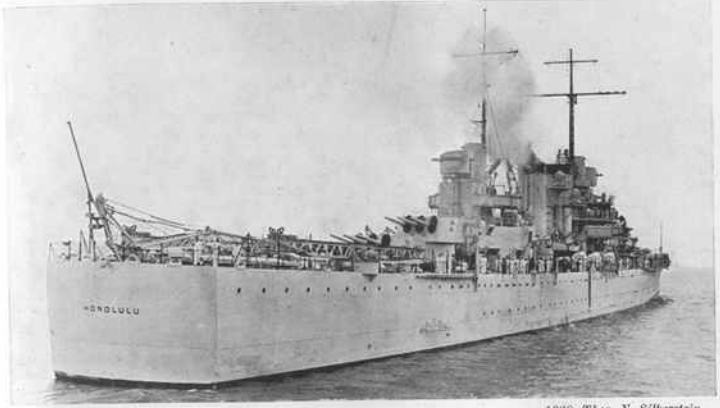
St. Louis. 1940, *Official.*

Notes on Helena and St. Louis.—These ships differ from rest of *Brooklyn* class in having their 5 inch AA. in pairs behind shields on high bases; a different scheme of boat stowage; a small tripod mast immediately abaft second funnel; and after gunnery control arrangements redistributed.

BROOKLYN CLASS (9 SHIPS)

BROOKLYN (Nov. 30, 1936), **PHILADELPHIA** (Nov. 17, 1936), **SAVANNAH** (May 8, 1937), **NASHVILLE** (Oct. 2, 1937), **PHOENIX** (March 12, 1938), **BOISE** (Dec. 3, 1936), **HONOLULU** (Aug. 26, 1937), **HELENA** (Aug. 27, 1938), **ST. LOUIS** (April 15, 1938).

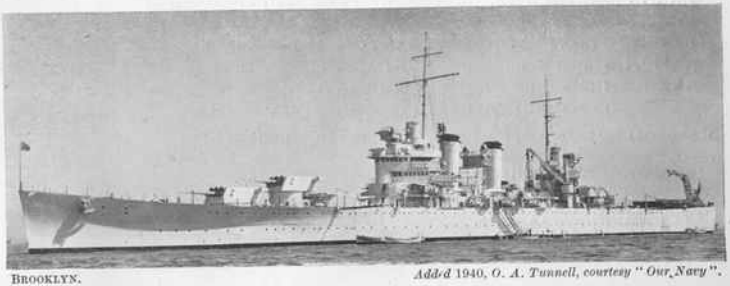
Displacement: 9,700 tons (*Brooklyn* and *Philadelphia*), 9,475 tons (*Savannah*), 9,650 tons (*Honolulu*), others estimated as 10,000 tons.
Complement: 868 (*Helena* and *St. Louis*, 888). Dimensions: 600 (*w.l.*) × 61½ × 19¾ feet (*mean*).



HONOLULU.

1938, *Theo. N. Silberstein.*

For short range practice 1-pdr. guns are sometimes mounted temporarily on tops of turrets.



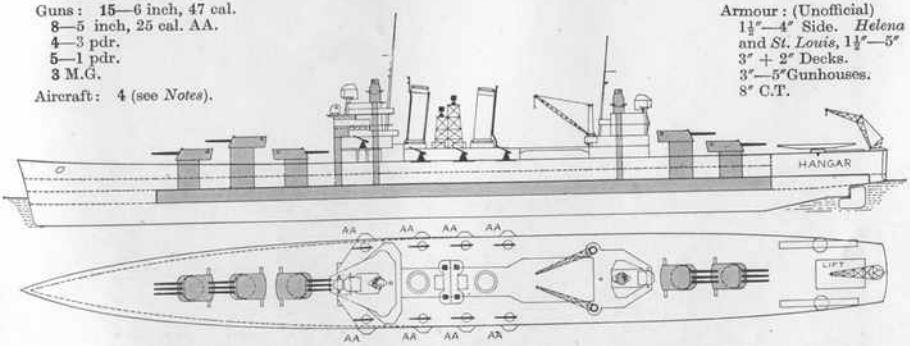
BROOKLYN.

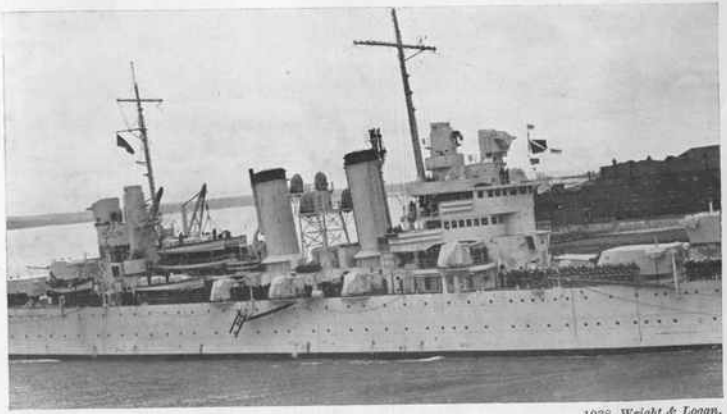
Added 1940, O. A. Tunnell, courtesy "Our Navy".

Guns: **15**—6 inch, 47 cal.
8—5 inch, 25 cal. AA.
4—3 pdr.
5—1 pdr.
3 M.G.

Aircraft: **4** (see *Notes*).

Armour: (Unofficial)
1½″—4″ Side. *Helena* and *St. Louis*, 1½″—5″
3″ + 2″ Decks.
3″—5″ Gunhouses.
8″ C.T.





HONOLULU.

1938, *Wright & Logan.*

Machinery: Geared turbines. 4 shafts. S.H.P.: 100,000 = 32·5 kts. Boilers: 8 Babcock & Wilcox Express type. Oil fuel: 2,100 tons. Radius: 14,500 miles at 15 kts.

Note.—The first four of this class were ordered under the Emergency Programme of 1933: the next three under the provisions of the "Vinson Bill"; and the last pair under the 1935–36 Programme. They are a reply to the Japanese "Mogami" class. Cost approaches $17,000,000 apiece. *Helena* and *St. Louis* are of a slightly modified design (vide notes on preceding page).

Aircraft Note—The hangar included in hull right aft is a completely new departure. It is provided with a lift and can accommodate 8 aircraft, though 4 is normal peace complement. Presence of this hangar accounts for very wide flat counter and high freeboard aft, which is also utilised to give after guns higher command. The two catapults are mounted as far outboard as possible and the revolving crane is placed at the extreme stern.

Name	*Builders*	*Machinery*	*Laid down*	*Completed*
Brooklyn	New York Navy Yd.	Builders in each case	12/3/35	18/7/38
Philadelphia	Philadelphia Navy Yd.		28/5/35	28/7/38
Savannah	New York S.B. Corp.		31/5/34	30/8/38
Nashville	Do.		24/1/35	25/11/38
Phœnix	Do.		15/4/35	18/3/39
Boise	Newport News Co.		1/4/35	1/2/39
Honolulu	New York Navy Yd.		10/9/35	7/9/38
Helena	New York Navy Yd.		9/12/36	/39
St. Louis	Newport News Co.		10/12/36	/39

(Omaha Class—10 Ships.)

OMAHA (Dec. 14th, 1920), **MILWAUKEE** (Mar. 24th, 1921),
RALEIGH (Oct. 25th, 1922), **DETROIT** (June 29th, 1922),
CONCORD (Dec. 15th, 1921), **TRENTON** (April 16th, 1923),
MEMPHIS (April 17th, 1924), **RICHMOND** (Sept. 29th, 1921),
MARBLEHEAD (Oct. 9th, 1923), **CINCINNATI** (May 23rd, 1921).

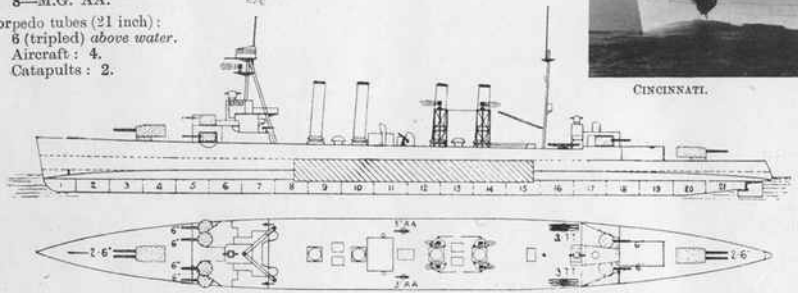
Displacement: 7,050 tons. Complement: 458.

Dimensions: 550 (*w.l.*), 555½ (*o.a.*) × 55½ × 13½ feet (*mean*), 20 feet (*max*).

Guns:
10—6 inch, 53 cal. Mk. XII.
(**12**—6 inch in *Concord, Memphis, Milwaukee, Omaha, Trenton*).
4—3 inch, 50 cal. AA.—**6** in *Cincinnati* and *Concord*.
2—3 pdr. (saluting).
8—M.G. AA.

Armour:
3" Side.....
1½" Upper Deck .....

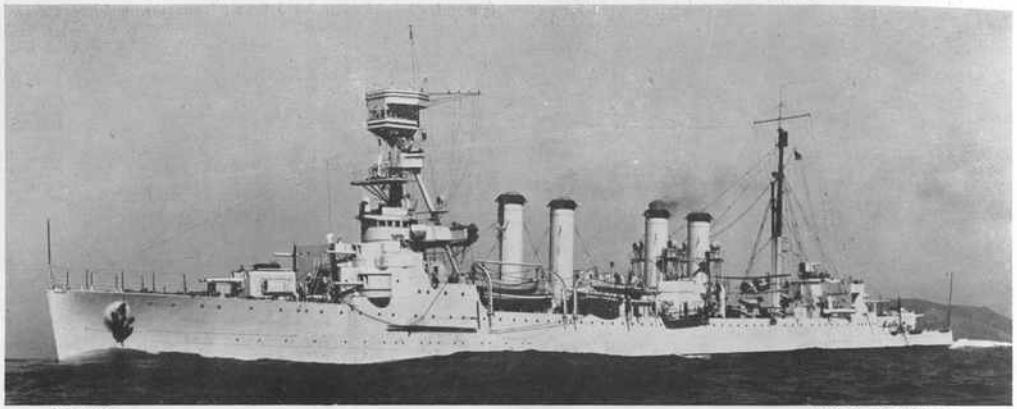
Torpedo tubes (21 inch):
6 (tripled) *above water*.
Aircraft: **4**.
Catapults: **2**.



Machinery: Turbines (see Table for types), with reduction gears. Designed S.H.P. 90,000 = **35** kts. 4 screws. Boilers: see Table. Fuel: oil only; *about* 2,000 tons (300,000 gallons). Radius of action: 10,000 miles at 15 knots, 7,200 at 20 kts.

Name.	*Built and Engined by*	*Laid down*	*Completed*	*Trials*	*Turbines.*	*Boilers*	*Heating Surface (sq. ft.)*
Omaha	Todd Co., Tacoma	6 Dec. '18	Feb. '23	94,290 = 34·87	Westghs.	12 Yarrow	
Milwaukee	" "	13 Dec. '18	June '23	90,060 = 34·64	"	12 Yarrow	90600
Cincinnati	" "	15 May '20	Dec. '23	94,290 = 34·44	"	12 Yarrow	
Raleigh	Bethlehem Co., Quincy	16 Aug. '20	Feb. '24	97,722 = 34·63	Curtis	12 Yarrow	
Detroit	" " "	10 Nov. '20	July '23	97,375 = 34·63	"	12 Yarrow	90084
Richmond	Wm. Cramp & Sons	16 Feb. '20	June '23	95,000 = 34·2	Parsons	12 White-F	
Concord	" " "	29 Mar. '20	Nov. '23	92,772 = 33·48	"	12 White-F	
Trenton	" " "	18 Aug. '20	April, '24	33·91	"	12 White-F	90840
Marblehead	" " "	4 Aug. '20	Sept. '24	95,950 = 34·42	"	12 White-F	
Memphis	" " "	14 Oct. '20	Jan. '25	34·43	"	12 White-F	

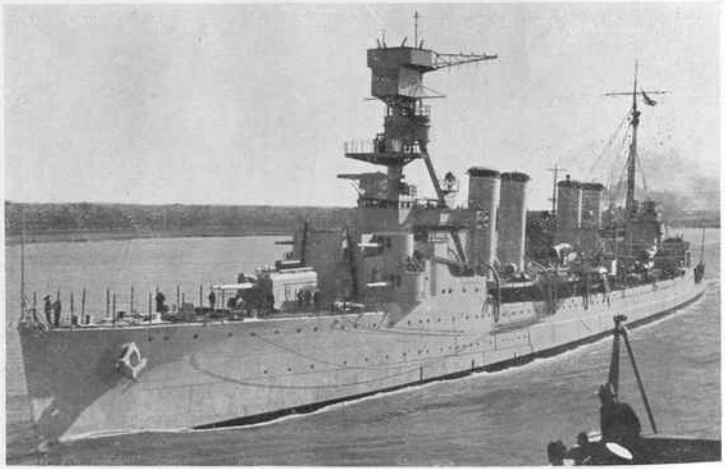
Gunnery Note:—Max. range is 22,000 yards; effective at 18,000 yards.



CINCINNATI.

1937, *O. W. Waterman.*

Appearance Note.—Foretopmast removed in some to provide for 4 AA. M.G. in control top.



MARBLEHEAD.

Added 1940, *B. R. Goodfellow, Esq.*

Note.—All U.S. Destroyers carry Depth Charges and Smoke Screen apparatus.

New Construction

The following additional orders for 115 new Destroyers were placed in September 1940 under a further Supplementary Programme for that year:

20 *Seattle-Tacoma S.B. Co., Seattle:* 493–497, 554–568.
18 *Bethlehem Steel Co., San Francisco:* 526–543.
17 *Federal S.B. & D.D. Co.:* 483–490, 498–506.
12 *Consolidated Steel Corpn., Orange, Texas:* 569–580.
11 *Bath Iron Works Corpn.:* 507–517.
10 *Bethlehem Steel Co., Staten Island:* 491, 492, 518–525.
6 *Bethlehem Steel Co., San Pedro:* 544–549.
4 *Gulf S.B. Corpn., Chickasaw, Ala.:* 550–553.
6 *Boston Navy Yard:* 581–586.
6 *Puget Sound Navy Yard:* 592–597.
5 *Charleston Navy Yard:* 587–591.

No particulars so far released as to types, etc.

24 Fletcher Class. (1940 Programme: 445—452, 467—482).

Ordered 1940.

2 *Federal S.B. & D.D. Co.:* ***Percival*** (452), ***Watson*** (482). (These 2 will be of a special type.)
4 *Federal S.B. & D.D. Co.:* ***Fletcher, Radford, Jenkins, La Vallette.***
6 *Bath Iron Works Corpn.:* ***Nicholas, O'Bannon, Chevalier*** (ex-*Pringle*), ***Strong, Taylor, De Haven.***
2 *Bethlehem (Staten Island):* ***Bache, Beale.***
5 *Boston Navy Yard:* ***Guest, Bennett, Fullam, Hudson, Hutchins.***
3 *Charleston Navy Yard:* ***Pringle*** (ex-*Chevalier*), ***Stanly, Stevens.***
2 *Puget Sound Navy Yard:* ***Halford, Leutze.***

Standard displacement: 2,100 tons. Guns: 8—5 inch, 38 cal. (dual purpose). No other particulars released. Authorised under 1940 Supplementary Programmes.

14 Bristol Class. (1940 Programme: 453—466).

Ordered 1940.

6 *Federal S.B. & D.D. Co.:* ***Bristol, Ellyson, Hambleton, Rodman, Saufley, Waller.***
2 *Bath Iron Works Corpn.:* ***Emmons, Macomb.***
2 *Bethlehem (S. Francisco):* ***Laffey, Woodworth.***
2 *Boston Navy Yard:* ***Forrest, Fitch.***
2 *Charleston Navy Yard:* ***Corry, Hobson.***

Standard displacement: 1,700 tons. Guns: 5—5 inch, 38 cal. Tubes: 10—21 inch. No other particulars released. Authorised under 1940 Supplementary Programmes. *Macomb* was laid down Sept. 3, 1940, and *Corry*, Sept. 4., 1940.

24 Benson Class. (1937–39 *Programmes*)

BENSON. 1940, *Wide World Photos.*

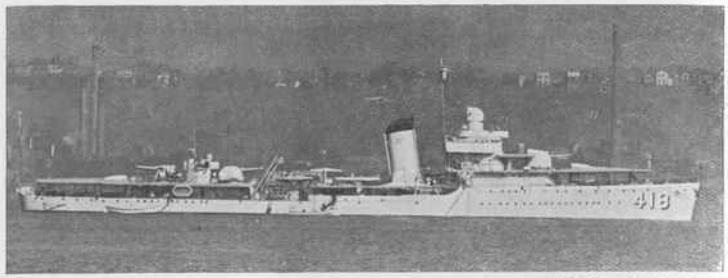
2 *Bethlehem (Quincy):* **Benson, Mayo.**
6 *Bath Iron Works Corpn.:* **Gleaves, Niblack, Eberle, Livermore** (ex-*Grayson*), **Woolsey, Ludlow.**
6 *Boston Navy Yard:* **Lansdale, Madison, Gwin, Meredith, Wilkes, Nicholson.**
4 *Charleston Navy Yard:* **Hilary P. Jones, Grayson** (ex-*Livermore*), **Swanson, Ingraham.**
2 *Puget Sound Navy Yard:* **Charles F. Hughes, Monssen.**
4 *Federal S.B. & D.D. Co.:* **Kearny, Plunkett, Edison, Ericsson.**

Standard displacement: 1,630 tons. Dimensions: 341 (*w.l.*), 348 (*o.a.*) × 35¼ × 10¼ feet (*mean*). Guns: 5—5 inch, 38 cal., 10 smaller. Tubes: **10**—21 inch (quintupled). Otherwise similar to *Sims* class.

Name	*No.*	*Laid down*	*Launched*	*Completed*	*Name*	*No.*	*Laid down*	*Launched*	*Completed*
Benson	421	16/5/38	15/11/39	25/7/40	*Gwin*	433	1/6/39	25/5/40	
Mayo	422	16/5/38	26/3/40	18/9/40	*Meredith*	434	1/6/39	24,4/40	
Gleaves	423	16/5/38	9/12/39	-/5/40	*Grayson*	435	17/7/39	7/8/40	
Niblack	424	8/8/38	18/5/40	1/8/40	*Monssen*	436	12/7/39	16/5/40	
Madison	425	19/12/38	20/10/39	9/40	*Woolsey*	437	9/10/39	14/12/40	
Lansdale	426	19/12/38			*Ludlow*	438	18/12/39	11/11/40	
H. P. Jones	427	16/11/38	14/12/39	40	*Edison*	439	18/3/40		
C. F. Hughes	428	3/1/39	16/5/40		*Ericsson*	440			
Livermore	429	6/3/39	3/8/40		*Wilkes*	441	1/11/39	31/5/40	
Eberle	430	12/4/39	14/9/40		*Nicholson*	442			
Plunkett	431	1/3/39	9/3/40	/40	*Swanson*	443	15/11/39		
Kearny	432	1/3/39		13/9/40	*Ingraham*	444			

Note.—There are probably variations in displacement as well as small differences in appearance in later units of this class. Some are reported to have square sterns. Reversion to 2 funnels is a noteworthy feature; thickness of these appears to vary.

12 Sims Class (*1936 Programme*)



ROE. 1940, *Theo. N. Silberstein.*

MUSTIN. 1940, *Official.*

2 *Bath Iron Works Corpn.:* **Hughes, Sims.**
2 *Newport News Co.:* **Mustin, Russell.**
2 *Federal S.B. & D.D. Co.:* **Anderson, Hammann.**
2 *Boston Navy Yard:* **O'Brien, Walke.**
2 *Norfolk Navy Yard:* **Morris, Wainwright.**
1 *Charleston Navy Yard:* **Roe.**
1 *Philadelphia Navy Yard:* **Buck.**

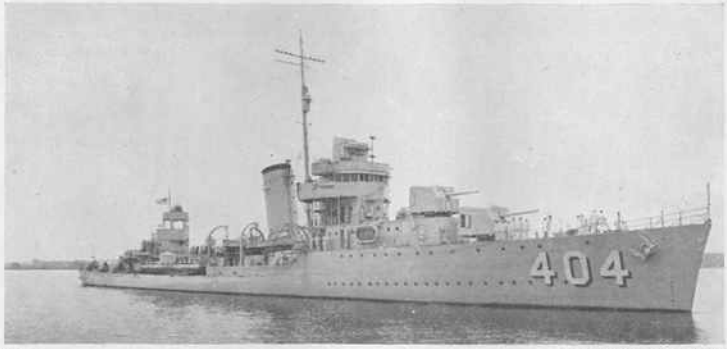
Standard displacement: 1,570 tons. (See notes below.) Dimensions: 341 (*w.l.*) × 35 × 10 feet (*mean*). Guns: 5—5 inch, 38 cal., several smaller. Tubes: **12**—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P.: 44,000 = 36·5 kts. Boilers: 4 Express. Oil fuel: 600 tons. Cost about $5,500,000 apiece.

Note.—This type combines the most successful features of *Craven* and *Mahan* classes. Reversion to 12 tubes understood to have been due to desire for higher freeboard abaft forecastle. General arrangement similar to *Dunlap* and *Fanning*, but with a single funnel. *Hammann* is reported to have made 39 knots on trials with about 50,000 S.H.P. Defective stability of this design has been remedied in earlier units of class by the addition of 60 tons of steel to the keel as ballast. Official designed displacement given above has therefore been exceeded, and ranges from 1,640 to 1,670 tons. In later units weight has been saved by use of lighter auxiliary plant, and reduction in thickness of plating for decks and superstructures. Sundry weights have been redistributed to improve stability.

Name	*No.*	*Laid down*	*Launched*	*Completed*	*Name*	*No.*	*Laid down*	*Launched*	*Completed*
Sims	409	15/7/37	8/4/39	1/8/39	*O'Brien*	415	31/5/38	20/10/39	
Hughes	410	15/9/37	17/6/39	21/9/39	*Walke*	416	31/5/38	20/10/39	
Anderson	411	15/11/37	4/2/39	21/7/39	*Morris*	417	7/6/38	1/6/39	1940
Hammann	412	17/1/38	4/2/39	8/39	*Roe*	418	23/4/38	21/6/39	
Mustin	413	20/12/37	8/12/38	15/9/39	*Wainwright*	419	7/6/38	1/6/39	
Russell	414	20 12/37	8/12/38	40	*Buck*	420	6/4/38	22/5/39	

22 Gridley Class (*1934–35 Programmes*)

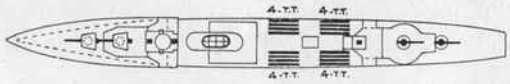
STACK. 1940, *Official, courtesy "Our Navy".*



RHIND. 1940, *courtesy "Our Navy".*

2 *Bethlehem Steel Co., S. Francisco:* **Maury, McCall.**
2 *Bethlehem Steel Co., Quincy:* **Gridley, Craven.**
5 *Norfolk Navy Yard:* **Bagley, Blue, Helm, Rowan, Stack.**
4 *Boston Navy Yard:* **Mugford, Ralph Talbot, Mayrant, Trippe.**
1 *Mare Island Navy Yard:* **Henley.**
3 *Puget Sound Navy Yard:* **Patterson, Jarvis, Wilson.**
3 *Federal S.B. & D.D. Co.:* **Benham, Eilet, Lang.**
1 *Philadelphia Navy Yard:* **Rhind.**
1 *Charleston Navy Yard:* **Sterett.**

Standard displacement: 1,500 tons. Complement: 172. Dimensions: 334 (*w.l.*), 341⅝ (*o.a.*) × 34¼ × 9½ feet (*mean*) Guns: 4—5 inch, 38 cal. (dual purpose), 4 M.G. Tubes: 16—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P.: 42,800 = 36·5 kts. Boilers: 4 Express type (except *Gridley* and *Craven*, 4 Bethlehem Yarrow). Oil fuel: 600 tons. Radius: 8,000 miles at 15 kts. Cost ranges from $3,400,000 to $3,750,000.

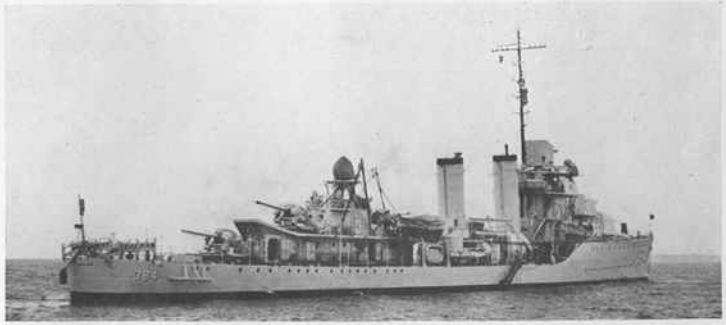


Notes.—Many of this class have exceeded designed speed on trials. *Eilet* and *Lang* are said to have approached 40 kts. Several ships were delayed in delivery through difficulties with high pressure and superheated installations.

2 Dunlap Class (*1934 Programme*)

DUNLAP. 1937, *Mr. James Downey.*

Plan as MAHAN *class*



DUNLAP. 1937, *Mr. James Downey.*

2 *United Dry Docks:* **Dunlap, Fanning.**

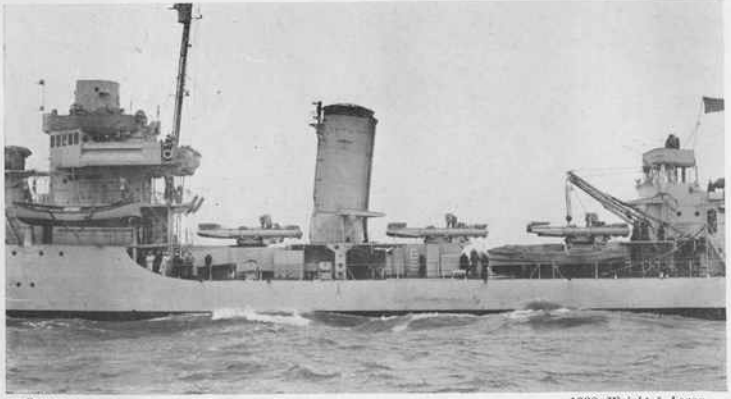
Standard displacement: 1,490 tons. Dimensions: 334 (*w.l.*), 341⅝ (*o.a.*) × 34¼ × 9½ feet (*mean*). Guns: 5—5 inch, 38 cal. (dual purpose), 4 M.G. Tubes: 12—21 inch (quadrupled). Machinery: Parsons geared turbines. S.H.P.: 42,800 = 36·5 kts. Boilers: 4 Express type. Oil fuel: 500 tons. Radius: 6,000 miles.

Name	*No.*	*Laid down*	*Launched*	*Completed*
Dunlap	384	10/4/35	18/4/36	7/7/38
Fanning	385	10/4/35	18/9/36	4/8/38

Name	*No.*	*Laid down*	*Launched*	*Completed*
Gridley	380	3/6/35	1/12/36	30/6/38
Craven	382	3/6/35	25/2/37	29/7/38
Bagley	386	31/7/35	3/9/36	10/8/38
Blue	387	25/9/35	27/5/37	10/8/38
Helm	388	25/9/35	27/5/37	16/9/38
Mugford	389	28/10/35	31/10/36	23/9/38
Ralph Talbot	390	28/10/35	31/10/36	23/9/38
Henley	391	28/10/35	12/1/37	12/9/38
Patterson	392	22/7/35	6/5/37	11/10/38
Jarvis	393	21/8/35	6/5/37	25/10/38
Benham	397	1/9/36	16/4/38	18/4/39
Eilet	398	3/12/36	11/6/38	18/4/39
Lang	399	5/4/37	27/8/38	26/5/39
McCall	400	17/3/36	20/11/37	19/12/38
Maury	401	24/3/36	14/2/38	17/1/39
Mayrant	402	15/4/37	14/5/38	/39
Trippe	403	15/4/37	14/5/38	/39
Rhind	404	22/9/37	28/7/38	/39
Rowan	405	25/6/37	5/5/38	/39
Stack	406	25/6/37	5/5/38	/39
Sterett	407	2/12/36	27/10/38	/39
Wilson	408	22/3/37	12/4/39	1/9/39

5 Somers Class. (*1934-35 Programmes*).

DAVIS. 1940.



SOMERS. 1938, *Wright & Logan*.

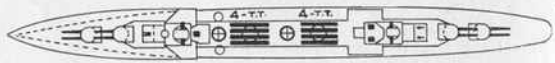
2 *Federal S.B. & D.D. Co.*: **Somers, Warrington.**
3 *Bath Iron Works Corpn.*: **Sampson, Jouett, Davis.**
Displacement: 1,850 tons. Complement: 198. Dimensions: 371 (*w.l.*) × 36¼ × 10¼ feet (*mean* draught). Guns: 8—5 inch, 38 cal., 8—1 pdr., 2 M.G. Tubes: 12—21 inch. Machinery: Geared turbines. S.H.P.: 52,000 = 37 kts. 4 Babcock & Wilcox high pressure boilers (officially stated to operate at 850° F.). Oil fuel: *circa* 600 tons. Cost averages over $5,000,000 each. In the case of *Somers* this includes a special air-conditioning plant.

Name	*No.*	*Laid down*	*Launched*	*Completed*	*Name*	*No.*	*Laid down*	*Launched*	*Completed*
Somers	381	27/6/35	13/3/37	30/6/38	*Davis*	395	28/7/36	30/7/38	16/12/38
Warrington	383	10/10/35	15/5/37	12/8/38	*Jouett*	396	26/3/36	24/9/38	7/3/39
Sampson	394	8/4/36	16/4/38	3/10/38					

8 Porter Class (*1933 Programme*).

PHELPS. 1939, *O. W. Waterman*.

WINSLOW. 1938, *O. W. Waterman*.

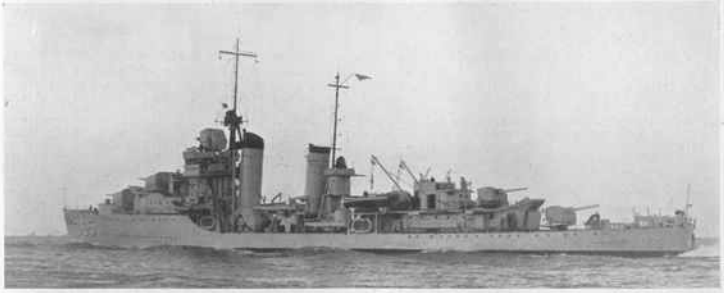


4 *New York S.B. Corpn.*: **Porter, Selfridge, McDougal, Winslow.**
4 *Bethlehem Steel Co., Quincy*: **Phelps, Clark, Moffett, Balch.**
Displacement: 1,850 tons (*Phelps* and *Clark* as completed, 1,805 tons; *Balch* and *Moffett*, 1,825 tons). Complement: 175. Dimensions: 371 (*w.l.*), 381 (*o.a.*) × 36¼ × 10¼ to 10⅓ feet (*mean* draught). Guns: 8—5 inch, 38 cal., 8—1 pdr., 2 M.G. Tubes: 8—21 inch. Machinery: Geared turbines. S.H.P.: 50,000 = 37 kts. (Trials, 39 kts.). 4 Babcock & Wilcox high pressure boilers. Oil fuel: *circa* 600 tons. Cost approaches $4,000,000 each.

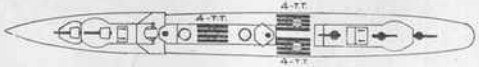
Name	*No.*	*Laid down*	*Launched*	*Completed*	*Name*	*No.*	*Laid down*	*Launched*	*Completed*
Porter	356	18/12/33	12/12/35	2/7/37	*Phelps*	360	2/1/34	18/7/35	26/2/36
Selfridge	357	18/12/33	18/4/36	26/10/37	*Clark*	361	2/1/34	15/10/35	20/5/36
McDougal	358	18/12/33	17/7/36	12/10/37	*Moffett*	362	2/1/34	11/12/35	28/9/37
Winslow	359	18/12/33	21/9/36	19/10/37	*Balch*	363	16/5/34	24/3/36	5/10/37

16 Mahan Class (*1933 Programme*)

PERKINS. 1939, *O. W. Waterman.*



CUMMINGS. 1938, *O.W. Waterman.*

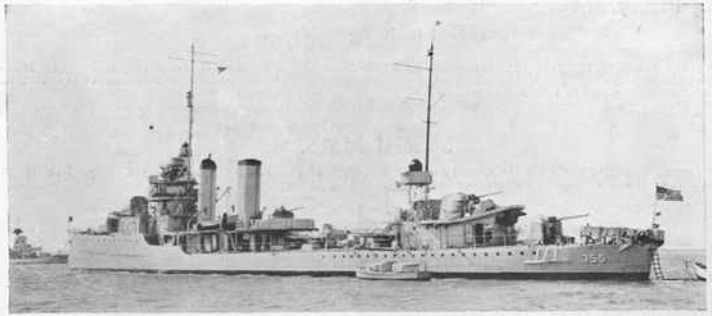


2 *Bath Iron Works Corpn.*: **Drayton, Lamson**
2 *Boston Navy Yard*: **Case, Conyngham.**
2 *United Dry Docks*: **Mahan, Cummings.**
2 *Federal S.B. and D.D. Co.*: **Flusser, Reid.**
2 *Philadelphia Navy Yard*: **Cassin, Shaw.**
2 *Norfolk Navy Yard*: **Tucker, Downes.**
2 *Puget Sound Navy Yard*: **Cushing, Perkins.**
2 *Mare Island Navy Yard*: **Smith, Preston.**

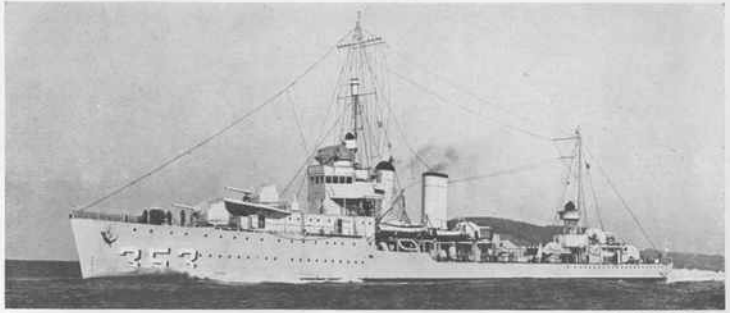
Standard displacement: 1,500 tons (except *Mahan*, 1,450 tons; *Cummings, Cushing, Perkins*, 1,465 tons. *Drayton, Lamson, Flusser, Reid, Smith, Preston*, 1,480 tons). Dimensions: 334 (*w.l.*), 341¼ (*o.a.*) × 34⅜ × 9 ft. 8 in. (*Mahan*), 9 ft. 9 in. (1,465 and 1,480-ton ships), 9 ft. 10 in. others, (*mean*); all about 17 feet *max.* Guns: **5**—5 inch, 38 cal. (dual purpose), **4** M.G. Tubes: **12**—21 inch (quadrupled). Machinery: Double reduction geared turbines. S.H.P.: 42,800 = 36·5 kts. Boilers: 4 Express type. Oil fuel: 500 tons. Radius: 6,000 miles. Cost ranges from $3,400,000 to $3,750,000.

Name	*No.*	*Laid down*	*Launched*	*Completed*	*Name*	*No.*	*Laid down*	*Launched*	*Completed*
Mahan	364	12/6/34	15/10/35	16/11/36	*Cassin*	372	1/10/34	28/10/35	6/4/37
Cummings	365	26/6/34	11/12/35	20/1/37	*Shaw*	373	1/10/34	28/10/35	20/4/37
Drayton	366	20/3/34	26/3/36	1/6/37	*Tucker*	374	15/8/34	26/2/36	30/3/37
Lamson	367	20/3/34	17/6/36	4/1/37	*Downes*	375	15/8/34	22/4/36	26/3/37
Flusser	368	4/6/34	28/9/35	1/12/36	*Cushing*	376	15/8/34	31/12/35	10/12/36
Reid	369	25/6/34	11/1/36	4/1/37	*Perkins*	377	15/11/34	31/12/35	10/12/36
Case	370	19/9/34	14/9/35	19/3/37	*Smith*	378	27/10/34	20/2/36	31/12/36
Conyngham	371	19/9/34	14/9/35	10/4/37	*Preston*	379	27/10/34	22/4/36	23/1/37

8 Farragut Class (*1932 Programme.*)



AYLWIN. 1939, *Theo. N. Silberstein.*



DALE. 1937, *O. W. Waterman.*

1 *Bethlehem Steel Co., Quincy*: **Farragut** (ex-*Smith*, ex-*Farragut*).
2 *New York Navy Yard*: **Hull, Dale.**
1 *Bath Iron Works Corpn.*: **Dewey** (ex-*Phelps*, ex-*Dewey*).
2 *Boston Navy Yard*: **MacDonough, Monaghan.**
1 *Philadelphia Navy Yard*: **Aylwin.**
1 *Puget Sound Navy Yard*: **Worden.**

Standard displacement: 1,395 tons (except *Farragut*, 1,365 tons; *Dewey*, 1,345; *Aylwin*, 1,375; *Worden*, 1410 tons.) Length, (*o.a.*), 341¼ feet; (*w.l.*), 331 feet (except *Farragut*, 330; *Dewey*, 329 feet). Beam, 34⅛ feet. *Mean* draught, 8⅔ feet (except *Farragut*, 8⅓ feet; *Dewey*, 8⅛ feet; *Aylwin*, 8¼ feet). *Maximum* draught, 15½ feet. Complement, 162. Guns: **5**—5 inch, 38 cal. (dual purpose), **4** M.G. Tubes: **8**—21 inch (quadrupled). Machinery: Geared turbines, S.H.P. 42,800 = 36·5 kts. (Max. trial speed reported to be 41 kts.) Boilers: 4 Yarrow (by Bethlehem), high pressure. Oil fuel: 490 tons. Radius: 6,000 miles. Cost ranges from $3,400,000 to $3,750,000.

Name	*No.*	*Laid down*	*Launched*	*Compl.*
Farragut	348	20/9/32	15/3/34	18/6/34
Dewey	349	16/12/32	28/7/34	3/10/34
Hull	350	7/3/33	31/1/34	24/5/35
MacDonough	351	15/5/33	22/8/34	28/6/35
Worden	352	29/12/32	27/10/34	1/3/35
Dale	353	10/2/34	23/1/35	19/7/35
Monaghan	354	21/11/33	9/1/35	30/8/35
Aylwin	355	23/9/33	10/7/34	1/5/35

83 Flush Deck Type.

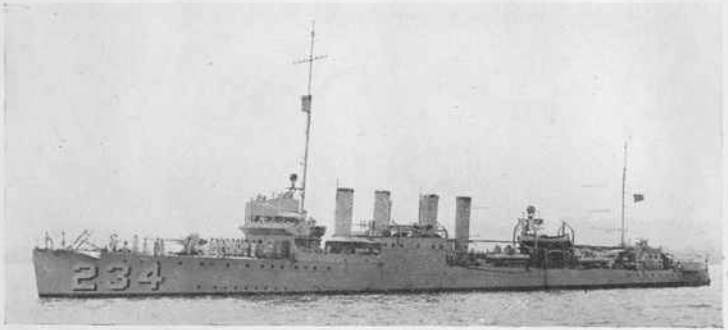
Various vessels of this type have been adapted for service as Light Minelayers, Seaplane Tenders, Fast Minesweepers and Transports. They will be found listed on later pages. Most of those named below have had two 50 inch A.A. machine guns added to their armament.

Special Note.

Numerals preceding name are the official Pendant Numbers, as painted on the bows of each ship. Numeral in parentheses after name refers to Builder (see list below).

Builders:—

1 Newport News S.B. Co.
2 Wm. Cramp & Sons.
6 New York S.B. Corpn.
7 Fore River S.B. Co. (now Bethlehem Steel Co., Quincy).
8 Navy Yard, Mare Island.
9 Navy Yard, Norfolk.
10 Union Iron Works (now Bethlehem Steel Co., San Francisco).

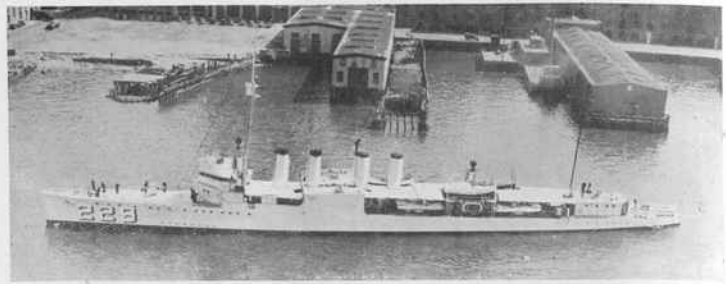


FOX. 1940, *Theo. N. Silberstein.*

1ST GROUP (5 Ships):

	Name	*Laid down*	*Launched*	*Compl.*
232	*Brooks* (6)	11/6/18	24/4/19	18/6/20
234	*Fox* (6)	25/6/18	12/6/19	17/5/20
233	*Gilmer* (6)	25/6/18	24/5/19	30/4/20
231	*Hatfield* (6)	10/6/18	17/3/19	16/4 20
235	*Kane* (6)	3/7/18	12/8/19	11/6/20

Displacement: 1,193 tons, *standard*. Complement, 122. Dimensions: 310 (*w.l.*), 314½ (*o.a*) × 30⅝ × 9¼ feet (*mean* draught), 13½ feet (*max.*). Guns: 4—5 inch, 51 cal., 1—3 inch, 23 cal. AA. Tubes: 12—21 inch (tripled). Machinery: Westinghouse geared turbines. 2 shafts. S.H.P. 26,000 = 35 kts. Boilers: 4 White-Forster. Total heating surface, 27,500 sq. ft. Oil fuel: 375 tons.



TRUXTUN. Observe close-stowing anchors. 1940, *Theo. N. Silberstein.*

(Another illustration of this type on following page.)

2ND GROUP (2 ships):

	Name	*Laid down*	*Launched*	*Compl.*
208	*Hovey* (2)	7/19/18	26/4/19	2/10/19
209	*Long* (2)	23/9/18	26/4/19	20/10/19

Same as 1st Group, except 6—4 inch, 50 cal. guns, in twin mountings. Parsons geared turbines.

3RD GROUP (38 ships):

	Name	*Laid down*	*Launched*	*Compl.*
246	*Bainbridge* (6)	27/5/19	12/6/20	9/2/21
213	*Barker* (2)	30/4/19	11/9/19	27/12/19
248	*Barry* (6)	26/7/19	28/10,20	28/12/20
215	*Borie* (2)	30/4/19	4/10/19	24/3/20
210	*Broome* (2)	8/10/18	14/5/19	31,10/19
222	*Bulmer* (2)	11/8/19	22/1/20	16/8/20
206	*Chandler* (2)	19,8/18	19/3/19	5/9/19
341	*Decatur* (8)	15/9/20	29/10/21	9/8/22
219	*Edsall* (2)	15,9/19	29/7/20	26/11/20
216	*John D. Edwards* (2)	21/5,19	18/10/19	6/4/20
228	*John D. Ford* (2)	11/11/19	2/9/20	30/12/20
247	*Goff* (6)	16/6/19	2/6/20	19/1/21
249	*Hopkins* (6)	30/7/19	26/6/20	21/3/21
236	*Humphreys* (6)	31/7/18	28/7/19	21/7/20
245	*Rbn. James* (6)	2/4/19	4/10/19	24/9/20
230	*Paul Jones* (2)	23/12/19	30/9/20	19/4/20
242	*King* (6)	21/4/19	14/10/20	16/12/20
250	*Lawrence* (6)	14/8/19	10/7,20	18/4/21
336	*Litchfield* (6)	15/1/19	12/8/19	12/5/20
220	*MacLeish*	19/8/19	18/12/19	2/8/20
223	*McCormick* (2)	11/8/19	14/2/20	30/8/20
343	*Noa* (9)	18/11/11	28/6/19	15/2/21
239	*Overton* (6)	30/10/18	10/7/19	30/6/20

3RD GROUP—*continued.*

	Name	*Laid down*	*Launched*	*Compl.*
218	*Parrott* (2)	23/7,19	25/11/19	11/5/20
226	*Peary* (2)	9/9/19	6/4/20	22/10/20
340	*Perry* (8)	15/9/20	29/10/21	7/8/22
227	*Pillsbury* (2)	23/10/19	3/8/20	15/12/20
225	*Pope* (2)	9/9/19	23/3/20	27/10/20
243	*Sands* (6)	22/3/19	28/10/19	10/11/20
221	*Simpson* (2)	9/10/19	28/4/20	3/11/20
207	*Southard* (2)	18/8/18	31/3/19	24/9/19
224	*Stewart* (2)	9/9/19	4/3/20	15/9/20
240	*Sturtevant* (6)	23/11/18	29/7/20	21/19/20
229	*Trever* (8)	12/8/19	15/9/20	3/8/22
229	*Truxtun* (2)	31/2/19	28/9/20	16/2/21
338	*Wasmuth* (8)	12/8/19	15/9/20	16/12/21
217	*Whipple* (2)	12/6/19	6/11/19	23/4/20
337	*Zane* (8)	15/1/19	12/8/19	15/1/21

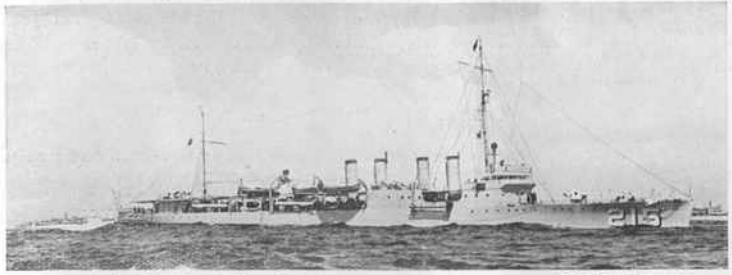
Same as 1st Group, 4—4 inch, 50 cal. guns. Parsons or Westinghouse geared turbines; Four White-Forster or Normand boilers. H.P. 24,200, 25,000 or 26,000 = 35 kts. T.H.S. 27,500 or 27,000 sq. ft.

4TH GROUP (3 ships):

	Name	*Laid down*	*Launched*	*Compl.*
*197	*Dahlgren* (1)	3/6/18	20/11/18	6/1/20
199	*Dallas* (1)	25/11/18	31/5/19	30/4/20
190	*Satterlee* (1)	10/7/18	21/12/18	22/12/19

Same as 3rd Group, except 311 feet water-line length. Westinghouse geared turbines. Four White-Forster boilers. S.H.P. 27,000 = 35 kts. T.H.S. 27,500 sq. ft.

**Dahlgren* re-engined, 1938; speed being increased considerably. Third and fourth funnels have been combined in one large casing, and tubes removed.



BORIE, showing AA. M.G. abaft fore-funnel. 1935, *O. W. Waterman.*

(All 3rd and 4th groups are of this appearance except *Dahlgren* which has only 3 funnels.)

5TH GROUP (28 ships):

Name	*Laid down*	*Launched*	*Compl.*
128 *Babbitt* (6)	19/2/18	30/9/18	24/10/19
126 *Badger* (6)	9/1/18	24/8/18	29/5/19
149 *Barney* (2)	26/3/18	5/9/18	14/3/19
153 *Bernadou* (2)	4/6/18	7/11/18	19/5/19
151 *Biddle* (2)	22/4/18	3/10/18	22/4/19
150 *Blakeley* (2)	26/3/18	19/9/18	8/5/19
148 *Breckinridge* (2)	11/3/18	17/8/18	27/2/19
155 *Cole* (2)	25/6/18	11/1/19	19/6/19
116 *Dent* (2)	30/8/17	23/3/18	9/9/18
157 *Dickerson* (6)	25/5/18	12/3/19	3/9/19
117 *Dorsey* (2)	18/9/17	9/4/18	16/9/18
152 *Du Pont* (2)	2/5/18	22/10/18	30/4/19
146 *Elliot* (2)	23/2/18	4/7/18	25/1/19
154 *Ellis* (2)	8/7/18	30/11/18	7/6/19
145 *Greer* (2)	24/2/18	1/8/18	31/12/18
141 *Hamilton* (8)*	8/6/18	15/1/19	7/11/19
160 *Herbert* (6)	9/4/18	8/5/19	21/11/19
130 *Jacob Jones* (6)	21/2/18	20/11/18	29/10/19
158 *Leary* (6)	6/3/18	18/12/18	5/12/19

5TH GROUP—*continued.*

Name	*Laid down*	*Launched*	*Compl.*
113 *Rathburne* (2)	12/7/17	27/12/17	24/6/18
147 *Roper* (2)	19/3/18	17/8/18	15/2/19
159 *Schenck* (6)	26/3/18	23/4/19	30/10/19
114 *Talbot* (2)	12/7/17	20/2/18	20/7/18
156 *J. Fred Talbott* (2)	8/7/18	14/12/18	30/6/19
142 *Tarbell* (2)	31/12/17	28/5/18	27/11/18
125 *Tattnall* (6)	1/12/17	5/9/18	26/6/19
144 *Upshur* (2)	19/2/18	4/7/18	23/12/18
115 *Waters* (2)	26/7/17	9/3/18	8/8/18

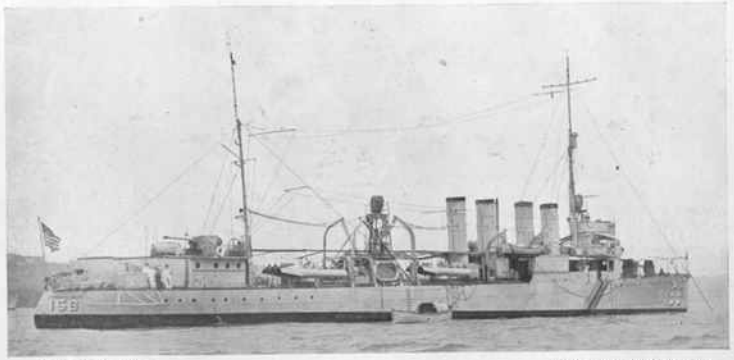
Displacement: 1,090 tons *standard*. Dimensions: 309 (*w.l.*), 314½ (*o.a.*) × 30½ × 8½ feet (*mean* draught), 12ft. (*max.*). Armament as Groups 3 and 4. Parsons geared turbines; Four White-Forster, Normand or Thornycroft boilers. H.P. 24,200, 26,000 or 27,000 = 35 kts. T.H.S.: 27,048, 27,000 or 27,500 sq. ft.

* *Hamilton* has had first funnel removed.

HOVEY & LONG HAVE 3 TWIN 4 INCH MOUNTS.

In each case after mount is placed on fantail

(Stern) (Bow)



J. FRED TALBOTT. 1938, *Theo. N. Silberstein.*

(5th and 6th groups like this, except *Hamilton*, which has only 3 funnels.)

6TH GROUP (7 ships):

Name	*Laid down*	*Launched*	*Compl.*
106 *Chew* (10)	2/1/18	26/5/18	12/12/18
109 *Crane* (10)	7/1/18	4/7/18	18/4/19
164 *Crosby* (7)	23/6/18	28/9/18	24/1/19
139 *Ward* (ex-*Cowell*)(8)	15/5/18	1/6/18	24/7/18
138 *Kennison* (8)	14/2/18	8/6/18	2/4/19
137 *Kilty* (8)	15/12/17	25/4/18	17/12/18
103 *Schley* (10)	29/10/17	28/3/18	20/9/18

6TH GROUP—*continued.*

Displacement: 1,060 tons *standard*. Dimensions: 309 (*w.l.*) 314½ (*o.a.*) × 30½ × 8½ feet (*mean* draught), 12 ft. (*max*). Armament as in 3rd, 4th and 5th Groups. Parsons turbines. Four Normand boilers. S.H.P. 25,000 = 35 kts. T.H.S.: 27,540 sq. ft. Oil fuel: 300 tons.

8 Light Minelayers (ex-Destroyers)

3 *Bath Iron Works*: **Preble, Pruitt, Sicard.** 1 *Cramp*: **Tracy.**

Displacement: 1,190 tons, *standard*. Dimensions: 310 (*w.l.*), 314½ (*o.a.*) × 30⅝ × 9½ feet (*mean* draught), 12¼ feet (*max.*). Guns: 4—4 inch, 50 cal., 1—3 inch, 23 cal., AA. Torpedo tubes removed. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 25,200 = 35 kts., except *Tracy*, 27,000 = 35 kts. Boilers: 4 Normand (except *Tracy* 4 White-Forster). Total heating surface, 27,000 sq. feet (except *Tracy*, 27,500 sq. feet). Oil fuel: 575 tons.

Note—Converted to present service from destroyers of 3rd Group (above) in 1937.

Name	*No.*	*Laid down*	*Launched*	*Completed*	*Name*	*No.*	*Laid down*	*Launched*	*Completed*
Preble	DM 20	12/4/19	8/3/20	19/3/20	*Sicard*	DM 21	18/6/19	20/4/20	1/5/20
Pruitt	DM 22	25/6/19	2/8/20	2/9/20	*Tracy*	DM 19	3/4/19	12/8/19	9/3/20

Light Mine Layers—*continued.*

MONTGOMERY. 1940, "*Ships and Aircraft.*"

4 *Newport News S.B. Co.:* ***Ramsay, Gamble, Breese, Montgomery.***
Ex-Flush Deck Destroyers, converted 1920–21. Identification Numbers: *Breese, DM* 18; *Gamble, DM* 15; *Montgomery, DM* 17; *Ramsay, DM* 16.
Displacements: 1,160 tons *standard* (1,284 *full load*). Dimensions: 309 (*w.l.*), 314 ft. 4 in. (*o.a.*) × 30 ft. 6 in. × 9 ft. (*mean* draught), 9 ft. 10 in. (*full load* draught aft).
Guns: 4—4 inch, 50 cal., 1—3 inch, 23 cal, AA. Torpedo tubes: Removed on conversion.
Mines carried: Unofficially reported to carry 80 Mark IV mines, for which magazines, deck rails and chutes have been fitted.
Machinery (*about* 486 tons): Curtis geared turbines. 4 Yarrow or Thornycroft boilers—27,540 sq. ft. heating surface. 2 screws. Designed S.H.P.: 27,000 = 35 kts. Fuel: 283 tons oil. Complement: 128.

Motor Torpedo Boats.

For Photo See Addenda

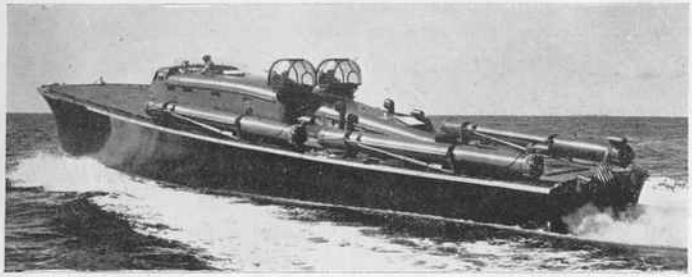
PT. 1, (Aug. 16, 1939), ***2,*** (Sept. 30, 1939), ***3,*** (April 18, 1940), ***4,*** (April 19, 1940). First pair built by Miami Shipbuilding Corpn., second pair by Fisher Boat Works Co. Wood. Displacement: 20 tons. Length: 59 feet. Armament: 2—21 inch torpedo tubes, 2—25 mm., and D.C Speed: 40 kts.

Photo wanted

PT. 5, 6, (1940). Built by Higgins Ind., Inc. Wood. Displacement: 35 tons. Length: 81 feet (*o.a.*). Armament 2—21 inch torpedo tubes, 2—25 mm., and D.C. Machinery: 3 Packard motors. B.H.P.: 3,750 = 40 kts. (7 more of this type are to be built).
PT. 7, 8. Built at Philadelphia Navy Yard, 1940. Length: 81 feet.

For Photo See Addenda

PT. 9, (1939). Built by British Power Boat Co., Ltd., Hythe, Southampton, and shipped to U.S.A. Armed with four 18 inch torpedo tubes and four ·50 inch M.G. AA.



1940, *courtesy "Our Navy."*

PT. 10—32 (1940-41). Built or building by Electric Boat Co., Bayonne, N.J., to above design, with improvements. Cost $18,000 each.

Submarines. *Note.*—All U.S. Submarines are painted black.

Fleet Submarines—Cruiser Type.

Under the 1940 Supplementary Programmes, 65 submarines are to be built by following:
35 *Electric Boat Co.:* ***Albacore, Amberjack, Barb, Blackfish, Bluefish, Bonefish, Cod, Cero, Corvina, Darter*** (Nos. 218–227), and 25 more (240–264).
14 *Portsmouth Navy Yard:* ***Drum, Flying Fish, Finback, Haddock, Halibut, Herring, Kingfish, Shad*** (Nos. 228–235), and 6 more (265–280).
6 *Mare Island Navy Yard:* ***Silversides, Trigger, Wahoo, Whale*** (Nos. 236–239), and 2 more (281, 282).
10 *Manitowoc S.B.Co., Wisconsin:* 265–274. (Names not announced.)
All believed to be of similar type to *Gato* class, below. Machinery: G.M. Diesels in E.B. Co. vessels; Fairbanks-Morse in Portsmouth; and H.O.R. in Mare Island.

6 Gato Class (1940 Programme).

Building.

6 *Electric Boat Co.:* ***Gato, Greenling, Grouper, Growler, Grunion, Guardfish*** (Nos. 212–217).
Believed to be slightly improved editions of *Tambor* class.
Displacement: 1,500 tons. Dimensions: 307 × 27 × 14 feet. Guns: 1—3 inch AA., 2 M.G. AA. Tubes: 10—21 inch (6 bow, 4 stern). Machinery: G.M. Diesels. Have 2 engine-rooms instead of 1 as in *Tambor* class, to reduce size of compartments. B.H.P.: 6,500 = 21 kts.

12 Tambor Class (1938-39 Programmes).

For Photo See Addenda.

6 *Electric Boat Co.:* ***Tambor, Tautog, Thresher, Gar, Grampus, Grayback.***
4 *Portsmouth Navy Yard:* ***Triton, Trout, Grayling, Grenadier.***
2 *Mare Island Navy Yard:* ***Tuna, Gudgeon.***
Displacement: 1,475 tons. Dimensions: 299 × 27 × 14 feet. Guns: 1—3 inch AA., 2 M.G. AA. Tubes: 10—21 inch (6 bow, 4 stern). Machinery: G.M. Diesels in first 6, Fairbanks-Morse in others, with all-electric drive. B.H.P.: 6,400 = 21 kts. (22 kts. reached on trials). Differ from *Sargo* type in silhouette, hull form, and internal lay-out.

Name & No.	*Laid down*	*Launched*	*Completed*	*Name & No.*	*Laid down*	*Launched*	*Completed*
Tambor (198)	16/1/39	20/12/39	3/6/40	*Gar* (206)	27/12/39		
Tautog (199)	1/3/39	27/1/40	3/7/40	*Grampus* (207)	14/2/40		
Thresher (200)	27/4/39	27/3/40	27/8/40	*Grayback* (208)	3/4/40		
Triton (201)	5/7/39	25/3/40	1/10/40	*Grayling* (209)	15/12/39	4/9/40	
Trout (202)	28/5/39	21/5/40	40	*Grenadier* (210)	2/4/40		
Tuna (203)	19/7/39	2/10/40		*Gudgeon* (211)	22/11/39		

10 Sargo Class (1936–37 Programmes).

SAILFISH. 1940, *courtesy "The Motor Boat".*

5 *Electric Boat Co.:* ***Sargo, Saury, Seadragon, Sealion, Spearfish.***
4 *Portsmouth Navy Yard:* ***Sculpin, Searaven, Seawolf, Sailfish,*** (ex-*Squalus*).
1 *Mare Island Navy Yard:* ***Swordfish.***
Displacement: 1,450/—— tons. Complement: 55. Dimensions: 299 (*w.l.*), 310 (*o.a.*) × 27 × 13¾ feet (*mean*). Guns: 1—3 inch, 50 cal., 1 M.G. AA. Tubes: 8—21 inch (4 bow, 4 stern). Machinery: H.O.R. Diesels in first 5, G.M. (Winton) in others. B.H.P.: 6,140 = 20 kts.

Name and No.	*Laid down*	*Launched*	*Completed*	*Name and No.*	*Laid down*	*Launched*	*Completed*
Sargo (188)	12/5/37	6/6/38	26/8/39	*Sculpin* (191)	7/9/37	27/7/38	31/3/39
Saury (189)	28/6/37	20/8/38	17/7/39	*Sailfish* (192)	18/10/37	14/9/38	12/5/40
Spearfish (190)	9/9/37	29/10/38	17/7/39	*Searaven* (196)	9/8/38	21/6/39	1940
Seadragon (194)	18/4/38	21/4/39	1940	*Seawolf* (197)	27/9/38	17/8/39	1940
Sealion (195)	20/6/38	25/5/39	1940	*Swordfish* (193)	27/10/37	1/4/39	20/9/39

Notes.—Cost about $5,000,000 each. *Squalus* foundered May 23, 1939, but was salved and renamed *Sailfish* in Feb. 1940. Repairs cost about $1,000,000.

6 Salmon Class.

SNAPPER. *Added* 1940, *O. W. Waterman.*

3 *Electric Boat Co.:* ***Salmon, Seal, Skipjack.***
2 *Portsmouth Navy Yard:* ***Snapper, Stingray.***
1 *Mare Island Navy Yard:* ***Sturgeon.***

Displacement: 1,450/2,198 tons (first 3), 1,445 tons (others). Dimensions: 298 (*w.l.*) × 26 × 14¼ feet (*mean*). Guns: 1—3 inch, 50 cal., 1 M.G. AA. Tubes: 8—21 inch (4 bow, 4 stern). H.O.R. Diesels (except last 3, which have Fairbanks-Morse). Complement: 55.

Name and No.	*Laid down*	*Launched*	*Completed*	*Name and No.*	*Laid down*	*Launched*	*Completed*
Salmon (182)	15/4/36	12/6/37	/38	*Snapper* (185)	23/7/36	24/8/37	1/3/38
Seal (183)	25/5/36	25/8/37	/38	*Stingray* (186)	1/10/36	6/10/37	30/6/38
Skipjack (184)	22/7/36	23/10/37	/38	*Sturgeon* (187)	27/10/36	15/3/38	2/9/38

6 Perch Class.

PLUNGER. (Now carries Pendant No. 179). 1938, *O. W. Waterman.*

3 *Electric Boat Co.:* ***Perch, Pickerel, Permit*** (ex-*Pinna*).
2 *Portsmouth Navy Yard:* ***Plunger, Pollack,*** 1 *Mare Island Yard:* ***Pompano.***

Displacement: 1,330/1,998 tons (except *Plunger* and *Pollack*, 1,335 tons). Complement: 50. Dimensions: 290 (*w.l.*), 300½ (*o.a.*) × 25 × 13½ feet (*mean* draught). Guns: 1—3 inch, 50 cal., 1 M.G.AA. Tubes: 6—21 inch. Winton Diesels in first 3, with G.E. motors: Fairbanks-Morse Diesels and Elliott motors in *Plunger* and *Pollack*; H.O.R. (modified M.A.N.) Diesels and Allis-Chalmers motors in *Pompano*. Cost averages $2,400,000 each.

Name and No.	*Laid down*	*Launched*	*Completed*	*Name and No.*	*Laid down*	*Launched*	*Completed*
Perch (176)	25/2/35	9/5/36	4/6/37	*Plunger* (179)	17/7/35	8/7/36	31/3/37
Pickerel (177)	25/3/35	7/7/36	26/1/37	*Pollack* (180)	1/10/35	15/9/36	28/4/37
Permit (178)	6/6/35	5/10/36	17/3/37	*Pompano* (181)	14/1/36	11/3/37	4/12/37

4 Pike Class.

PORPOISE. (Now carries Pendant No. 172). 1937, *O. W. Waterman.*

2 *Portsmouth Navy Yard:* ***Pike, Porpoise.***

Displacement: 1,310/1,934 tons. Dimensions: 283 (*w.l.*), 301 (*o.a.*) × 25 × 13 feet (*mean*). Winton Diesels. Elliott motors.

2 *Electric Boat Co.:* ***Shark, Tarpon.***

Displacement: 1,315/1,968 tons. Dimensions: 287 (*w.l.*), 298 (*o.a.*) × 25 × 13½ feet (*mean*). Winton Diesels, with electric drive. Elliott motors. First all-welded submarines in U.S. Navy. Radius of this and succeeding classes approaches 12,000 miles.

Both types: Complement: 50. Guns: 1—3 inch, 50 cal. Tubes: 6—21 inch. Speed: 20/10 kts.

Name and No.	*Laid down*	*Launched*	*Compl.*	*Name and No.*	*Laid down*	*Launched*	*Compl.*
Porpoise (172)	27/10/33	20/6/35	15/1/36	*Shark* (174)	24/10/33	21/5/35	25/1/36
Pike (173)	20/12/33	12/9/35	17/4/36	*Tarpon* (175)	22/12/33	4/9/35	12/3/36

CUTTLEFISH. (Now carries Pendant No. 170). 1935, *O. W. Waterman.*

Cachalot **(170,** ex-*V.8*) Portsmouth Navy Yard. Laid down Oct. 21, 1931. Launched Oct. 19, 1933. Completed March 1, 1934. ***Cuttlefish*** **(171,** ex-*V.9*) Electric Boat Co. Laid down Oct. 7, 1931. Launched Nov. 21, 1933. Completed June, 1934.

Respective displacements: 1,110 and 1,120/1,650 tons. Complement, 45. Dimensions: 260 (*w.l.*), 271½ (*o.a.*) × 24¾ × 12½ feet (*Cachalot*): 25 × 12⅝ (*Cuttlefish*). Machinery: 2 sets G.M. "V" type Diesels. H.P.: 3,400/800 = 17/9 kts. Armament: 1—3 inch AA. Tubes: 6—21 inch. All-welded construction. Guns mounted abaft C.T. No external torpedo stowage.

Note.—Owing to design of original engines (with direct drive) having proved unsatisfactory, *Cachalot* and *Cuttlefish* were given new machinery under 1936 Programme.

DOLPHIN. (Now carries Pendant No. 169). 1935, *O. W. Waterman.*

Dolphin **(169,** ex-*V.7*) Portsmouth Navy Yard. Laid down June 14, 1930. Launched March 8, 1932. Completed Oct. 14th, 1932.

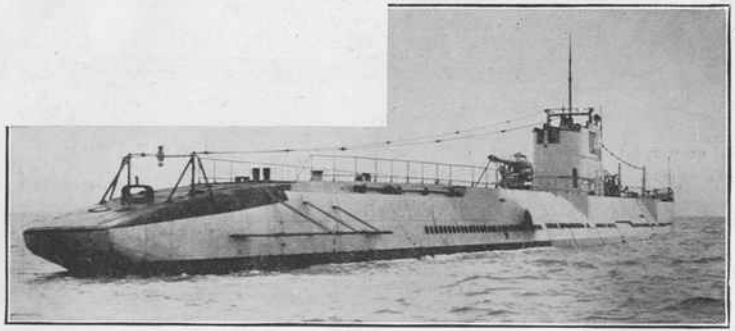
Displacement: 1,540/2,215 tons. Complement, 63. Dimensions: 307 (*w.l.*), 319 (*o.a.*) × 27½ × 13 feet. M.A.N. Diesels, H.P.: 4,200 = 17 kts. *surface*. Electric motors, H.P.: 875 = 8 kts. *submerged*. Guns: 1—4 inch, 50 cal., Tubes: 6—21 inch + 3 Torpedoes stowed externally.

NAUTILUS. (Now carries Pendant No. 168). *Added*, 1938, *Wide World Photos.*

Narwhal **(167,** ex-*V.5*) (Dec. 17, 1929), ***Nautilus*** **(168,** ex-*V.6*) (March 15, 1930). Laid down at Portsmouth and Mare Island Navy Yards, respectively, May 10 and August 2, 1927. Machinery for both vessels built at New York Navy Yard. Displacement: 2,730/3,960 tons. Dimensions: 371 (*o.a.*), 349 (*w.l.*) × 33⅓ × 15¼ feet (*mean*). Armament: 2—6 inch, 6—21 inch tubes. M.A.N. Diesels, H.P. 5,450 = 17 kts. *surface*. Westinghouse electric motors, H.P. 2,540 = 8·5 kts. *submerged*. Complement, 88. Estimated cost: Hull and machinery, $5,350,000 armament, $1,020,000. Authorised 1916 as Nos. 167–168. Completed in July and Oct., 1930, respectively.

Note.—Also carry eight external Torpedo Stowage Tubes, two each side fore and aft under the half-deck amidships. Neither vessel can exceed 14 kts. with present engines, which are to be replaced in 1940–41 by Fairbanks, Morse & Co. for the sum of $2,850,000 for the 2 vessels.

Fleet Submarines—Minelaying Type.



1928 *Official Photo.*

1929 *Official Photo.*

Argonaut* (*166 ex-*V.4*) (Portsmouth Navy Yard, Nov. 10th, 1927). Machinery by Brooklyn Navy Yd. Displacement: 2,710/4,080 tons. Dimensions: 358 (*w.l.*), 381 (*o.a.*) × 33½ × 15½ feet. Armament: 2—6 inch guns, 4—21 inch tubes, 60 mines. Diesels of 3,175 S.H.P. Speed 14·6/8 kts. Complement, 89. Is an improved edition of *Barracuda* in other respects. Estimated cost: Hull and machinery, $5,300,000; armament, etc., $850,000. Authorised 1916, as No. 166, laid down May 1, 1925, and completed May 28, 1928.

Note.—It was stated officially in Jan. 1938, that, owing to defects in engine design, the *Argonaut's* speed does not exceed 13 knots. It is therefore intended to replace the existing engines in 1940–41, a contract for this purpose having been assigned to General Motors for $1,406,450. At the same time the latest system of Torpedo control will be installed.

Fleet Submarines.

BONITA. (Now carries Pendant No. 165). 1935, *O. W. Waterman.*

3 *Bureau* design: ***Barracuda*** (ex-*V.1*), ***Bass*** (ex-*V.2*), ***Bonita*** (ex-*V.3*). Built at Portsmouth Navy Yard. Displacement: 2,000/2,506 tons. Complement: 75. Dimensions: 326 (*w.l.*), 341¼ (*o.a.*) × 27½ × 14¼ feet. Guns: 1—3 inch AA., 2 M.G. Tubes: 6—21 inch, 16 torpedoes carried. Machinery: 2 sets Busch-Sulzer Diesels aft for main drive. H.P.: 6,700 = 18·75 kts. on *surface*. Also 2 sets M.A.N. auxiliary Diesels forward driving generators supplying current to electric motors, H.P.: 2,400 = 8 kts. *submerged*. Latter combination can be used for cruising on surface with electric drive. Radius of action: 12,000 miles. Designed speed never realised in service.

Name & No.	*Laid down*	*Launched*	*Compl.*
Barracuda (163)	20/10/21	17/7/24	1/11/24
Bass (164)	20/10/21	27/12/24	26/9/25
Bonita (165)	16/11/21	9/6/25	17/6/26

S 22. 1939, *W. H. Davis, Esq.*

Note on S Class.—An official report in 1925 stated that "experience in manœuvres indicates that these vessels cannot be considered as a satisfactory type of fleet submarines."

6 *Electric Boat Co.* design: ***S42—S47*** (1923–24). All six were contracted for by Electric Boat Co.; hulls sub-contracted for by Bethlehem S.B. Co., Quincy. Authorised 1916–18. Displacement: 850/1,126 tons. Dimensions: 225½ × 20½ × 15 feet. Guns: 1—4 inch, 50 cal. Tubes: 4—21 inch. 12 Torpedoes carried. Engines: Two sets 600 B.H.P., 8 cylinder, 4 cycle Nelseco. Motors: 2 sets each 750 H.P. Elect. Dy. Co. Speed: 14·5/11 kts. Oil: 11,463—46,363 gallons. Complement: 38.

1 *Bureau* design: ***S48*** (1921). By Lake T. B. Co. 1000/1458 tons. Dimensions: 266 (*w.l.*), 267 (*o.a.*) 21½ × 13½ feet. Guns: 1—4 inch, 50 cal. Tubes: 5—21 inch (4 bow, 1 stern). 14 torpedoes carried. Engines 2 sets M.A.N. (N.Y.) 4 cycle 6 cyl. = total B.H.P. 2000. Motors: 2 sets each 750 h.p. Speed 14·5/11 kts. Crash dive in 60 secs. *Max.* dive limit: 200 feet. Divided into 6 watertight compartments. Double hull amidships, single hull at ends. 3 periscopes. Oil: 23,411 gallons *normal*, 44,305 *max.* Rad: 8,000 at 10 kts. Authorised 1916. Complement: 38.

Note.—*S 48* is stated to have been re-engined in 1929 with two new motors of 1000 H.P. each, oil storage being increased at same time. She was undergoing an extensive refit at Cristobal in 1938.

1940, "*Ships and Aircraft*."

S 22.

24 *Electric Boat Co.* design: ***S 1, S 18*** (1918), ***S 20—41*** (1918–22). All contracted for by Electric Boat Co., and sub-contracted for as follows: *S* 1 by Fore River S.B. Co., *S* 18—*S* 29 by Bethlehem S.B. Co., Quincy, *S* 30—*S* 41 by Bethlehem S.B. Co., San Francisco. 800/1,062 tons. Dimensions: 219½ × 20⅔ × 15 feet. 2 sets of 600 B.H.P. Nelseco Diesel engines. Motors: 2 sets 750 H.P. Ridgeway or Electric Dynamic Co. (*S* 1). Oil: 11,511/41,921 gallons. Have large radius of action *on surface*. Armament: 1—4 inch gun and 4—21 inch bow tubes (12 torpedoes carried). Authorised: *S* 1 (1916, as No. 105), *S* 18—21 (1916–17 as Nos. 123—126), *S* 22—41 (1916–17, as Nos. 127—146). *S* 1 experimentally fitted, 1923 to carry a small seaplane in a cylindrical tank abaft C.T.

Note.—*S* 30 built at expense of Philippines Government. *S* 19 scrapped, 1937. *S* 20 used for experimental work.

3 "*Bureau design*" boats: ***S 11—13*** (1919–21); all by Portsmouth Ny. Yd Dimensions: 231 × 21⅔ × 13½ feet. Displacement: 790/1,092 tons. Guns: 1—4 inch, 50 cal. Tubes: 5—21 inch (14 torpedoes carried). Engines: 2 sets of 4-cycle "Bureau Design" M.A.N. (6 cyl.) type, each 1,000 B.H.P. Motors: 2 sets 600 H.P. Westinghouse. Oil: 19,271/36,950 gallons. Speed: 15/10·5 kts. Completed 1919–23. *S* 4 sunk by collision with Coast Guard Destroyer, *Paulding*, on Dec. 17, 1927; salved and brought in to port March, 1928. After being used for some time as a special vessel for experimental purposes, she was discarded and scuttled off Hawaii in 1936. Other numbers scrapped.

4 *Bureau* design: ***S 14—S 17*** (1919—20). All by Lake T.B. Co. Dimensions: 231 × 21⅔ × 13 feet = 790/1092 tons. Guns: 1—4 inch, 50 cal. Tubes: 4—21 inch (12 torpedoes carried). Engines: 2 sets M.A.N (N.Y.) 4 cycle 6 cyl. = B.H.P. 2,000. Motors: 2 sets each 600 H.P. Westinghouse. Speed, 14/12·25 kts Complement, 38. Oil, 19,271/36,950 gallons.

Coastal Submarines.

Building.

1 *Electric Boat Co.*: ***Mackerel.*** (204). (Sept. 28, 1940).

1 *Portsmouth Navy Yard*: ***Marlin.*** (205).

Displacement: 800 tons. Dimensions: 231 (*pp.*), 253 (*o.a.*) × 21½ × 12 feet. Guns: 1—3 inch, 2 M.G. T.T., 6—21 inch (4 bow, 2 stern). Machinery: Nelseco Diesels in *Mackerel*, American Locomotive Co. Diesels in *Marlin*. Electric Dynamic motors. B.H.P.: 1,600 = 14·5 kts. Provided for under 1939 Programme. *Mackerel* laid down Oct. 6, 1939, *Marlin* May 28, 1940.

Official, added 1935.

39 *Electric Boat Co.* design: ***R1—7, 9—20*** (1917–19). All contracted for by Electric Boat Co. and sub-contracts assigned as follows: *R* 1—7, 9—14, by Fore River S.B. Co., *R* 15—20 by Union I.W. San Francisco. Displacement: 530/680 tons. Dimensions: 186 × 18 × 14½ feet. Armament: 1—3 inch, 50 cal gun, 4 torpedo tubes (8 torpedoes carried). Engines: 2 sets of 440 B.H.P. (400 r.p.m.) 6-cyl. 4-cycle Nelseco Diesel. Fuel: 7,691/18,880 gallons. Motors: 2—467 H.P. Electric Dynamic Co., with Cutler-Hammer Co. magnetic controllers. Batteries: Electric Storage Co. Type 31-WLL. Authorised 1916 as Nos. 78—97. Completed 1918–19.

1920 *Photo.*

O 6.

8 *Electric Boat Co.* design: ***O 2—O 4*** and ***O 6—O 10*** (1917–18), viz. *O* 2 by Puget Sound Navy Yard; *O* 3, *O* 4 and *O* 6—*O* 10 contracted for by Electric Boat Co. and sub-contracted for by Fore River Co. Dimensions: 172½ × 18 × 14½ feet. 480/624 tons. 1—3 inch, 23 cal. AA. gun. 4 torpedo tubes (8 torpedoes). Engines: 2 sets of 440 B.H.P. (400 r.p.m.) 6-cyl. 4-cycle Nelseco Diesel engines. 14·5/11 kts. 10,089/21,897 gallons. Motors: 2—370 H.P. in *O* 2, by New York Navy Yard; in others, by Electric Dynamic Co., all with Cutler-Hammer Co. magnetic controller. Gould storage batteries, Type 29-WLL in *O* 2. Electric Storage Co., Type 49-WLL in others. Electric batteries weigh 65 tons. Radius of action: 3,500/3,000 miles, at 11 kts. *on surface*. Authorised 1915, as Nos. 62—71. Completed 1918.

Note.—*O* 5 wrecked, Oct. 28, 1923, and not considered worth repair after salvage. *O* 1 converted into an experimental vessel, 1937, and discarded following year.

Patrol Vessels—Submarine Chasers.

PTC 13—24. Ordered from Electric Boat Co. To be enlarged and improved editions of *PTC* 1—12, below.

PTC 1—12. Wood. Of British Power Boat type. Building by Electric Boat Co. at Elco Works, Bayonne, N.J.

PC 453. Ordered July, 1940, from Fisher Boat Works. (*For photo see Addenda*).

PC 451, (May 23, 1940), **452.** Steel. Length: 170 and 174 feet (*o.a.*) respectively. Built by Defoe Boat and Motor Works. G.M. Diesels.

1940 *Official, courtesy "Our Navy."*

PC 449 (May 14, 1940), **450** (March 14, 1940). Wood. Length: 110 feet (*o.a.*). Armed with 3-inch and smaller guns. 2 sets Diesels, 2 shafts. Speed: 17 kts. Complement, 22. Built by Luders Marine Construction Co., Stamford, Conn., and American Car and Foundry Co., Wilmington, Del., respectively.

Patrol Vessels—*continued.*

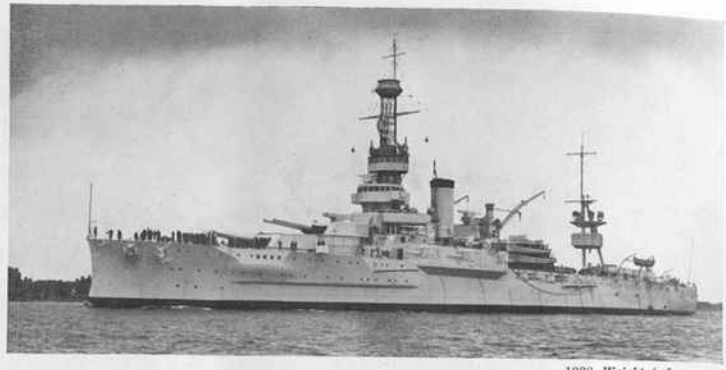
EAGLE 17. 1919 *Photo, by courtesy of the Ford Motor Co., Detroit.*

"EAGLES" 19, 27, 32, 38, 48, 55, 56, 57, 58. Launched 1918–19, by Ford organisation. Displacement: *standard*, 430 tons, *full load* 615 tons. Complement: 61. Dimensions: Length, 200 feet (*p.p.* and *o.a.*). Beam, 25½ feet. *Mean* draught, 7½ feet; *full load*, 8½ feet. Armament: **2**—4 inch, 50 cal.; **1**—3 inch AA., **2** M.G. Carry **12** depth charges. Machinery: Poole geared Turbine. 2 Bureau Express boilers. 1 screw. Designed H.P.: 2,500 = 18 kts. Fuel: 105 tons coal + 45 tons Oil. Endurance: 3,500 miles at 10 kts.

SC. 200. 1919 *Photo.*

SC 64, 102, 103, 185, 192, 229, 231, 330, 412, 428, 432, 437, 440. Built 1917–19 by various Navy Yards and private contractors. Displacement: 75 tons *standard*, 85 tons *full load*. Wooden hulls. Length: 105 feet (*p.p.*), 110 feet (*o.a.*). Beam: 14 ft. 9 in. *Mean* hull draught, 5 ft. 6 in., *full load* aft, 5 ft. 8 in. Armaments: **1**—3 inch, 23 cal., M.G., and D.C. Machinery: 3 sets of 220 B.H.P. Standard petrol motors = 17 kts. 2,400 gallons Petrol = 900 miles at 10 kts. Complement: 26.

Training Ship.



1938, *Wright & Logan.*

WYOMING (May 26, 1911). Displacement: 19,700 tons (*standard*). Dimensions: 555½ (*w.l.*) × 93 × 23½ feet (*mean* draught). Guns: **6**—12 inch, 50 cal.; **16**—5 inch, 51 cal.; **8**—3 inch AA., **4**—6 pdr. Parsons turbines. White-Forster boilers. H.P. 28,000 = 21 kts. Built by Cramps, sister to *Arkansas*, described on an earlier page. Demilitarised under terms of the London Naval Treaty, and bulges removed. H.P. and speed given above were prior to conversion. Best speed now is 18 kts.

Target Ships.

1934 *Photo.*

UTAH (New York S.B. Corpn., Dec. 23, 1909). Ex-battleship employed as wireless controlled target ship. *Standard* displacement: 19,800 tons. Dimensions: 512 (*w.l.*) × 106 × 22½ feet (*mean* draught). Parsons turbines. White-Forster boilers. Speed originally was 21 kts.

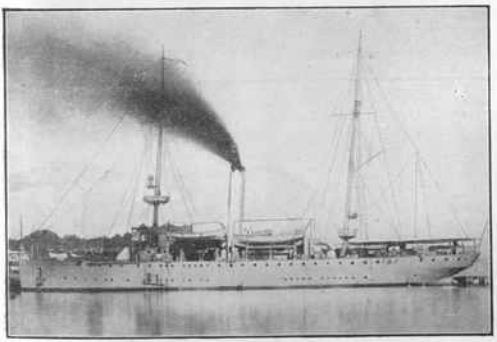
LAMBERTON, BOGGS. Ex-destroyers of "flush deck" type, classed as Mobile Targets.

Sloops, rated as Patrol Vessels—Gunboats.

ERIE. 1940, *Official.*

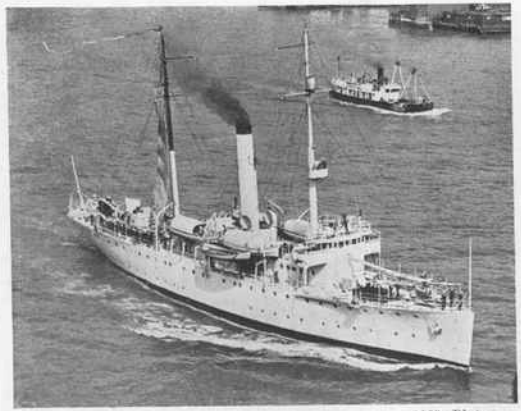
CHARLESTON (Feb. 25, 1936). Built at Charleston Navy Yard.
ERIE (Jan. 29, 1936). Built at New York Navy Yard.
Standard displacement: 2,000 tons. Dimensions: 308 (*w.l.*), 328½ (*o.a.*) × 41½ × 11½ feet (*mean* draught). Guns: 4—6 inch, 2—quad. M.G. AA., 2—3 pdr. Protection: 1″ side at waterline (3″ over vital spaces); 3″ C.T.; 1″ shields and bridge; 2″ + 1″ decks. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 6,200 = 20 kts. Boilers: Babcock and Wilcox.

Notes.—Ordered 1933 under Emergency Programme. Laid down in Oct. and Dec., 1934, and completed in Oct., 1936. 6 inch guns are 47 cal. new model.
1 seaplane included in equipment.



TULSA. 1925 *Photo, by courtesy of the Navy Dept.*

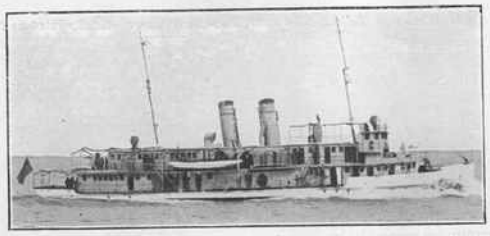
TULSA (Charleston, N.Y., 25th August, 1922). **ASHEVILLE** (Charleston, N.Y., July, 1918). Displacement, 1270 tons (*full load*, 1760 tons). Complement, 185. Length (*pp.*) 225 feet, (*o.a.*) 241½ feet. Beam, 41½ feet. *Mean* draught, 11½ feet. Guns: 3—4 inch, 50 cal., 2—3 pdr., 3—1 pdr. Machinery: Parsons turbine with reduction gear. 1 screw. Boilers: 3 Bureau (modified Thornycroft). Designed H.P. 800 = 12 kts. Fuel, 180 tons coal + 440 tons oil.



1939, *Photo.*

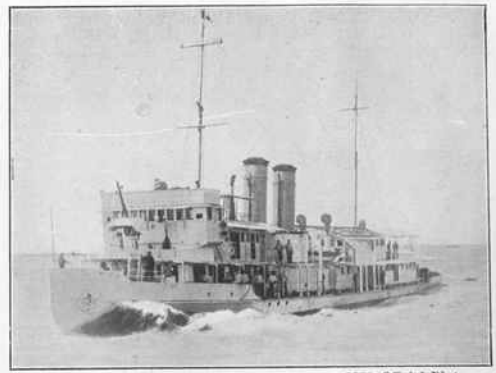
SACRAMENTO (Feb., 1914). Displacement, 1140 tons. Complement, 153. Length (*waterline*), 210 feet. Beam, 40⅝ feet. *Mean* draught, 11½ feet. Guns: 3—4 inch, 50 cal.; 2—3 pdr.; 2—1 pdr. Machinery: 1 set triple expansion. Boilers: 2 Babcock. H.P. 950 (trials 1022 = 12·78 kts.). Coal: *maximum*, 428 tons. Built by Cramps. Completed, 1914, and assigned in 1939 to service on Great Lakes.

Patrol Vessels—River Gunboats (PR).



GUAM. 1928 *Official Photo.*

GUAM May 28, 1927), **TUTUILA** (June 14, 1927). Displacement: 370 tons *standard*. 150 (*w.l.*), 159½ (*o.a.*) × 27 × 5½ feet *mean* draught (fresh water), 6 feet (*max.*). Freeboard at side (main deck): Forward, 6 ft. 3 in.; amidships, 3 ft. 5 in.; aft, 4 ft. 2 in.
Triple expansion engines, $\frac{12 \times 18 \times 29}{16}$, revs. 320. H.P. 1950 = 14·5 kts. Oil fuel: 75 tons. Guns: 2—3 inch. 23 cal, behind shields, 10 M.G. Complement, 63 *Guam*, 58 *Tutuila*.



1929 *Official Photo.*

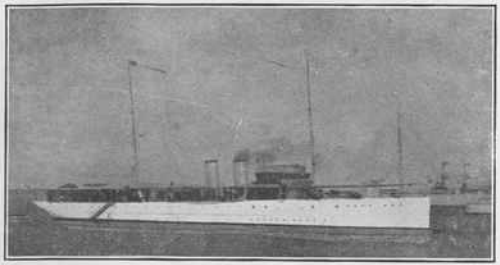
OAHU (Nov. 26, 1927). Displacement: 450 tons *standard*. Complement: 65. 180 (*w.l.*), 191 (*o.a.*) × 28 × 5½ (*mean*), 6½ (*max.*). Freeboard at side (main deck): Forward, 7 ft. 9½ in.; amidships, 3 ft. 9½ in.; aft. 4 ft. 6 in. Triple expansion engines, $\frac{13\frac{1}{2} \times 22 \times 34}{16}$, revs. 320. H.P.: 2,250 = 15 kts. (Trials, 17·73 kts.). Oil fuel: 103 tons. Guns: 2—3 inch, 50 cal. AA., 10 M G.

Note.—Sister ship *Panay* sunk by Japanese aircraft, Dec. 12, 1937.

LUZON. 1929 *Official Photo.*

LUZON (Sept. 12, 1927), **MINDANAO** (Sept. 28, 1927). Displacement: 560 tons *standard*. Complement, 82 and 78, respectively. 198 (*w.l.*), 210¾ (*o.a.*) × 31 × 6½ (*mean*) 7 (*max.*) Freeboard at side (main deck): Forward, 10 ft. 7 in.; amidships, 5 ft. 7in.; aft, 5ft. 10 in.
Triple expansion engines, $\frac{15 \times 23 \times 36\frac{1}{2}}{18}$, revs. 320. H.P. 3,150 = 16 kts. Oil fuel: 173 tons. Guns: 2—3 inch, 50 cal. AA., 10 M.G.
Above 5 gunboats authorised 1924 and laid down 1926 by Kiangnan Dock and Engineering Works, Shanghai. Completed, 1928.
The following characteristics are common to all :—2 Thornycroft oil-burning boilers, 250 lbs. working pressure. 2 shafts.

Patrol Vessels (Ex-Yachts).



ISABEL. 1927 *Photo.*

ISABEL (Bath I.W., 1917, taken over 1917). 710 tons*. Dimensions: 230 (*w.l.*) × 26 × 8·6 feet. Guns: 2—3 inch, 50 cal., 2—3 inch AA, 6 smaller. S.H.P. 8400 = 26 kts. Parsons turbine and 2 Normand boilers. Fuel: 216¼ tons oil. Complement, 99.

Note.—Was fitted and classed as a Destroyer during the World War.

* Full load is 938 tons.

Patrol Vessels (ex-Yachts)—*continued.*

PC 457 (ex-*Trouper*) (1939). Displacement: 85 tons. Dimensions: 106 × 18 × 6 feet. Machinery: 2 Cooper-Bessemer Diesels. B.H.P.: 600 = 22 kts.

ARLIS. 103 tons. Further particulars wanted.

EDMAR (ex-*Pamnorm*) (1931). 61 tons *gross*. Dimensions: 79½ × 15 × 7 feet. Machinery: Diesel.

ELDA (ex-*Avalanche*) (1930). 373 tons *gross*. Dimensions: 153 (*w.l.*) × 24 × 8 feet. Machinery: 2 Winton Diesels. 2 shafts.

ENTROPHY (1922). 513 tons *gross*. Dimensions: 160½ × 26 × 14 feet. Machinery: Diesels. H.P.: 700.

HAIDA (1929). 704 tons *gross*. Dimensions: 178 (*w.l.*) × 30 × 12 feet. Machinery: 2 Diesel engines. 2 shafts.

KATOURA (ex-*Lou-Kiani II*, ex-*Magdalene II*, ex-*Elfay*, ex-*Katoura*) (1914). 293 tons *gross*, 481 tons T.M. Dimensions: 115 (*w.l.*) × 30 × 19 feet. Machinery: 2 Winton Diesels. B.H.P.: 250.

ORION (Kiel, 1929). 3,007 tons *gross*, 3,023 tons T.M. Dimensions: 305 (*w.l.*) × 46¾ × 16 feet. Machinery: 2 Diesels. 2 shafts.

ONWEGO (1931). 224 tons *gross*. Dimensions: 119 (*w.l.*) × 22 × 6½ feet. Machinery: 2 Winton Diesels. 2 shafts.

SAVITAR (1922). 104 tons *gross*. Dimensions: 96½ × 16 × 7½ feet. Machinery: Diesels.

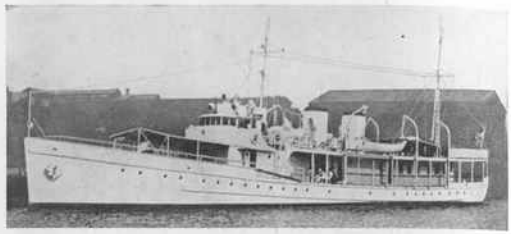
SYLPH (ex-*Intrepid*) (1930). 596 tons *gross*, 809 tons T.M. Dimensions: 152 (*w.l.*) × 33¾ × 16 feet. Machinery: Winton Diesel. Is to be employed as Seagoing Training Ship for Naval Reserves.

VARA (1928). 356 tons *gross*. Dimensions: 149 (*w.l.*) × 24 × 8 feet. Machinery: 2 Diesel engines. 2 shafts.

All reported to be armed with 3 inch and smaller guns.

(Several more yachts are believed to have been acquired by the United States Navy during August–October, 1940.)

Presidential Yacht



1937 *courtesy Winton Engine Corpn.*

POTOMAC (ex- U.S. Coast Guard patrol boat *Electra*). (1934). Displacement, 370 tons. Dimensions: 165 × 25½ × 8½ feet. Machinery: Winton Diesels. H.P. 1,300 = 16.5 kts.

Aircraft Tenders.

Note.—Minesweepers *Avocet, Heron, Lapwing, Swan, Thrush, Gannet, Pelican, Teal* and *Sandpiper*, are now officially rated as Aircraft Tenders (small type) for Patrol Planes.

Both refitting.

TANGIER (ex-*Sea Arrow*, 1939). Acquired July, 1940. 7,773 tons *gross*. Dimensions: 469 × 69½ × — feet. Machinery: 2 sets geared turbines. Oil fuel: 1,417 tons.

Ex-EXCHEQUER (1940). Acquired October, 1940. Particulars wanted.

Completing.

CURTISS (April 20, 1940), **ALBEMARLE** (July 13, 1940), **CURRITUCK** (ordered 1940), all by New York S.B. Corpn. authorised under 1937, 1938 and 1940 Programmes respectively. Displacement: 8,625 tons. Length: over 500 feet. To carry 24 aircraft. Cost $9,943,000.

BARNEGAT, BISCAYNE, CASCO, MACKINAC (all Puget Sound Navy Yard), **HUMBOLDT, MATAGORDA** (both Boston Navy Yard). Building under 1938–40 Programmes. First pair laid down October 27, 1939, second pair May 30, 1940, and third pair Sept. 6, 1940. Displacement: 1,695 tons. Speed reported as 20 kts. (10 more vessels of this kind are to be built.)

(*Classed as Seaplane Tender.*) 1939, *O. W. Waterman*

WRIGHT (ex-Emergency Fleet Corporation Hull *No. 680*, "Type B," launched at Hog Island, April 28th, 1920). Conversion effected by Tietjen & Lang Dry Dock Co., Hoboken, 1920-21. 8,675 tons. Dimensions: 448 (*p.p.* and *o.a.*) × 58 × 27⅝ feet *max.* draught. Guns: 2—5 inch, 51 cal., 2—3 inch, 50 cal. AA., 4 M.G. AA. Designed S.H.P. 6000 = 15 kts. G.E. Curtis geared turbines and 6 Babcock & Wilcox boilers. Oil: 1629 tons. Complement, 311. Fitted as flagship, and can accommodate 12 aircraft.

1937 *Official*

LANGLEY (ex-Fleet Collier *Jupiter*, launched Aug. 24th, 1912, converted 1920-21).

Displacement, 11,050 tons. Complement, 341 (excluding flying personnel).

Length, { *w.l.* 519 / *o.a.* 542 feet. } Beam, 65¼ feet. Draught { *Mean*, 17 feet 3 in. / *Max.*, 24 feet. }

Guns: 4—5 inch, 51 cal.

Aircraft: 2 (Observation type).

Machinery.—G.E. turbines and electric drive. 2 shafts. Boilers: 3 double-ended cylindrical and 1 auxiliary. S.H.P. (on first trials as Fleet collier) 7152 = 14·99 kts. *Max.* fuel capacity: oil only, 2300 tons.

Engineering Notes.—First large ship of U.S.N. built with electric drive and Melville-McAlpine reducing gear. This system of propulsion proved so successful, that it was adopted for Capital Ships. Two horizontal smoke ducts on port side with hinged extensions which can be lowered. Fitted with Sperry gyro-stabiliser.

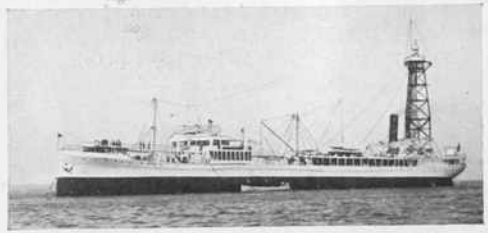
General Notes.—Begun at Mare Island N. Yd., October, 1911, and completed as Fleet Collier, 1913. So served till March, 1920, when she was placed out of commission for conversion by Norfolk Navy Yd. into an Aircraft Carrier. In 1937 she was further modified and reclassed as an Aircraft Tender.

WILLIAMSON.

1939, *Official.*

CHILDS (1920), **WILLIAMSON** (1919), **CLEMSON** (1918), **GOLDSBOROUGH** (1918), **GEORGE E. BADGER** (1920), **HULBERT** (1919), **WILLIAM B. PRESTON** (1919), **BALLARD** (1918), **BELKNAP** (1919), **GILLIS** (1919), **GREENE** (1918), **McFARLAND** (1920), **OSMOND INGRAM** (1919), **THORNTON** (1919). Ex-destroyers. Displacement: 1,190 tons. Dimensions: 310 (*w.l.*), 314½ (*o.a.*) × 30⅜ × 9¼ feet (*mean* draught). Guns: 2—4 inch, 50 cal., 2 M.G. AA. Machinery: Westinghouse geared turbines. S.H.P.: 15,000 = 26 kts. Boilers: 2 White-Forster.

Note: These 14 vessels are distinguished by numerals 14 to 20 and 23 to 29 painted on bows.



1934 *Official.*

PATOKA (1919). Displacement: 5,375 tons. Dimensions: 463½ (*p.p.*) × 60 × 26½ feet (*mean* draught). Complement: 156. Guns: 2—5 inch, 2—3 inch AA. Machinery: Quadruple expansion. I.H.P.: 2,900 = 10·5 kts. Boilers: 3 S.E. Oil fuel: 1,109 tons. *Pa'oka*, though classed as an oiler, is fitted with a mooring mast for airships. Equipment includes workshops for repair of aircraft and storage for petrol.

Mine Layers.

Two Minelayers of 4,700 tons were ordered in October, 1940, under a supplementary programme.

TERROR. Displacement: 6,000 tons. Laid down at Philadelphia Navy Yard, Sept. 3, 1940, under the 1938 Programme. Guns: 6 or 8—5 inch.

1932 *Photo, Official.*

AROOSTOOK (Cramps, 1907. Ex-S.S. *Bunker Hill*, of Eastern Steamship Corpn., purchased 1917 and converted by Boston N.Yd. into Mine Planter). All details as *Oglala*. Boilers: 8 S.E. H.P. 7000 = 20 kts. Has been employed as Aircraft Tender. Now out of commission.

1932 *Photo, Official.*

OGLALA (Cramps, 1907. Ex *Shawmut*, ex-S.S. *Massachusetts*, of Eastern Steamship Corpn., purchased 1917 and converted by Boston N.Yd. into Mine Planter). 4,200 tons. Dimensions: 395 (*o.a.*) × 52⅜ × 14½ feet (*mean*). Guns: 1—5 inch, 51 cal., 2—3 inch AA., 2—6 pdr., 4—1 pdr. Reciprocating engines and 4 S. E. boilers. 2 screws. H.P. and speed uncertain. Oil: 607 tons. Complement: 373. Now out of commission.

Netlaying Tenders.

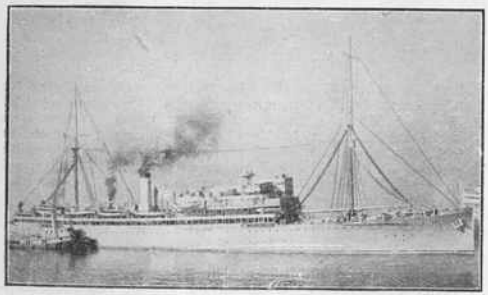
Contracts were placed in July 1940 for 32 vessels classed as Netlaying Tenders, of which 12 will be built by American Shipbuilding Co., Cleveland, Ohio; and 4 each by General Engineering Co.; Lake Washington Shipyards; Commercial Iron Works, Portland, Ore.; Mathis Co., Camden, N.J.; and Marietta Mfg. Co., Point Pleasant, W. Va. Cost slightly over $500,000 each. Names will be *Aloe, Ash, Birch, Butternut, Catalpa, Chestnut, Cinchona, Cottonwood, Dogwood, Ebony, Eucalyptus, Fir, Gumtree, Holly, Juniper, Larch, Locust, Mahogany, Mango, Maple, Mimosa, Mulberry, Palm, Poplar, Redwood, Rosewood, Sandalwood, Sycamore, Teaberry, Teak, Walnut, Yew.*

Auxiliaries—Destroyer Tenders.

DIXIE (with PRAIRIE behind her). 1940, *Theo. N. Silberstein.*

(Another illustration in Addenda.)

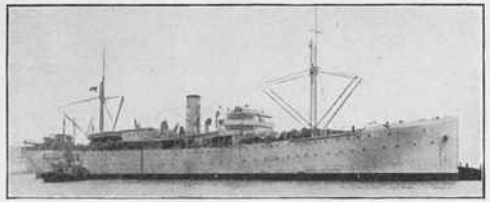
DIXIE (May 27, 1939), **PRAIRIE** (Dec. 9, 1939). Both built by New York S.B. Corpn. under 1937 and 1938 Programmes respectively. Displacement: 9,450 tons. Dimensions: 520 (*w.l.*) × 73½ × — feet. Guns: 4 small. Cost $11,000,000 each.



DOBBIN. 1925 *Official Photo, U.S. Navy Dept.*

WHITNEY (Boston N.Yd., Oct. 12th, 1923), **DOBBIN** (Philadelphia N.Yd., May 5th, 1921). 8,325 tons. Dimensions: 460 (*p.p.*), 483⅜ (*o.a.*) × 61 × 24½ feet (*mean* draught). Guns: 8—5 inch, 4—3 inch AA., 2—6 pdr. Torpedo tubes, for testing purposes: 2—21 inch. Parsons geared turbines. Boilers: 2 Bureau Modified Thornycroft. 1 screw. Designed S.H.P. 7000 = 16 kts. Oil: 1107 tons. Complement, 589. Equipped to serve as Depot, Repair and Hospital Ship for 18 Destroyers. Possess special anti-torpedo protection. Generally sister ships to *Holland*, Tender to Submarines. Both fitted as flagships.

Destroyer Tenders—*continued.*



ALTAIR. 1927 *Official Photo.*

ALTAIR (1919), **DENEBOLA** (1919), **RIGEL** (1918). 6,250 tons. Dimensions: 423¾ × 54 × 20 feet. Guns: 4—5 inch, 51 cal., 4—3 inch AA., 2—6 pdr. Curtis geared turbines. Boilers: 3 single-ended. S.H.P. 2500 = 10·5 kts. Oil: 1097 tons. Complement, 284 to 590. All three built by Skinner & Eddy Corporation, Seattle. Former names were *Edisto, Edgewood*, and *Edgecombe*, respectively.

Official, added 1935.

MELVILLE (1915). 5,250 tons. Complement, 574. Dimensions: 400 (*p.p.*) × 54½ × 20 feet (*mean* draught). Guns: 8—5 inch (51 cal.), 1—3 inch AA., 2—3 pdr. Torpedo tubes: 1—18 inch. Machinery: Parsons geared turbines. 2 Thornycroft boilers. H.P. (estimated) 4006 = 15·09 kts. Fuel: 930 tons *oil*. Built by New York S.B. Co.

1934 *Photo.*

BLACK HAWK (Cramp, 1913, ex-Grace Steamship Co. S.S. *Santa Catalina*, taken over 1917). 5,600 tons. Dimensions: 404½ (*p.p.*) × 53¾ × 19¾ feet. Guns: 4—5 inch, 2—3 pdr., 2—1 pdr. Machinery: Quadruple expansion. Boilers: 3 single-ended. I.H.P. 3400 = 13 kts. Oil: 2108 tons. Complement, 685.

Destroyer Tenders—*continued.*

1920 *Photo, Seward, Weymouth.*

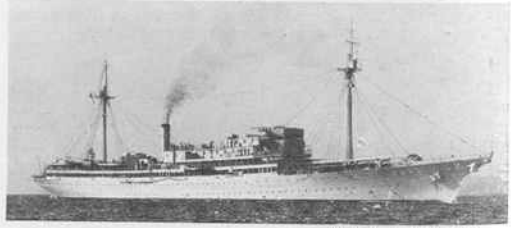
BRIDGEPORT (Vegesack, Germany, 1901, ex-North German Lloyd S.S. *Breslau*, seized 1917). 7,175 tons. Dimensions: 429½ (*p.p.*) × 54½ × 24⅝ feet. Guns: 8—5 inch, 4—3 inch 50 cal. AA. Machinery: Quadruple expansion. Boilers: 2 double-ended and 2 single-ended. I.H.P. 3600 = 12·5 kts. Coal: 1060 tons. Complement, 552.

Auxiliaries—Submarine Tenders.

Note.—In October, 1940, it was announced that 3 more Submarine Tenders would be built at a total cost of $50,000,000. Two of these will be built at Mare Island Navy Yard and one at Puget Sound Navy Yard.

FULTON, SPERRY. Displacement: 9,250 tons. Machinery: G.M. (Winton) Diesel engines. B.H.P.: 12,000 = 20 kts. *Fulton* laid down July 19, 1939 at Mare Island Navy Yard, under 1938 Programme. *Sperry* to be built there under 1940 Programme.

GRIFFIN (ex-*Mormacpenn*, 1939), (ex-*Mormacyork*, 1940). 7,886 tons *gross*. Dimensions: 468½ (*o.a.*) × 69½ × 26 feet. Machinery: 4 sets Busch-Sulzer Diesels. B.H.P.: 9,000 = 15·5 kts.



1937, *O. W. Waterman.*

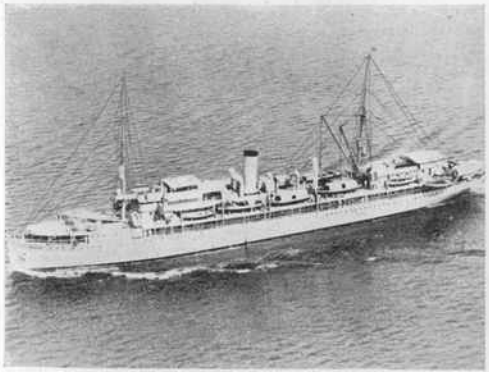
HOLLAND (Puget Sound N. Yd., April 12, 1926). Begun April 11th, 1921, completed 1926. 8,100 tons. Dimensions: 460 (*p.p.*), 513 (*o.a.*) × 61 (*extreme*) × 22¾ feet (*mean* draught). Guns: 8—5 inch, 4—3 inch AA., 2—6 pdr. Torpedo tubes: 1—21 inch, *submerged*. Parsons geared turbines. 1 screw. Boilers: 2 Bureau Modified Thornycroft. Designed S.H.P. 7,000 = 16 kts. Oil: 1050 tons. Complement, 398. Generally sister ship to *Whitney* and *Dobbin*, Destroyer Tenders.

Submarine Tenders—*continued.*

Note.—Obsolete Cruiser *Alton*, ex-*Chicago*, Submarine Barracks at Pearl Harbour. Various Minesweepers of "Bird" class serve as Submarine Tenders at New London, Hampton Roads; Coco Solo, and Pearl Harbour.

ARGONNE. 1930 *Photo, Lt.-Com. H. A. Gosnell, U.S.N.*

ARGONNE (Hog Island, 1920). 8,400 tons. Dimensions: 448 × 58 × 24¾ feet *max.* draught. Guns: **4**—5 inch, 51 cal., **4**—3 inch, 50 cal. AA., **2**—6 pdr. Curtis geared turbines. 1 screw. Boilers: 6 Babcock. S.H.P. 6000 = 15 kts. Oil fuel: 1473 tons. Complement, 344.



BEAVER. 1935, *courtesy of U.S. Naval Institute, Annapolis, Md.*

BEAVER (Newport News, 1910, purchased 1918). 4,670 tons. Dimensions: 380 (*o.a.*) × 47 × 22¾ feet (*max.* draught), Guns: 4—5 inch, **2**—1 pdr. 1 screw. Boilers: 6 single-ended. I.H.P. 4500 = 16·5 kts. Fuel: 530 tons oil fuel. Complement, 350.

Submarine Tenders—*continued.*

1926 *Official Photo.*

CANOPUS (New York S.B. Co., 1919). 5,975 tons. Dimensions: 373¾ × 51½ × 21½ feet. Guns: **2**—5 inch, 51 cal., **4**—3 inch AA., 2—3 pdr. Machinery: Quadruple expansion. 1 screw. Boilers: 4 single-ended. H.P. 3858 = 13 kts. Oil: 1277 tons. Complement, 317.

Note.—Original name of this ship was *Santa Leonora.*

1935, *Bear Photo Services.*

CAMDEN (Flensburger S. B. Co., 1900, ex-German-Australian s.s. *Kiel*, seized 1917). Displacement: 6,075 tons. Dimensions: 403¾ (*o.a.*) × 48 × 22½ feet. Guns: **4**—4 inch, **2**—3 pdr., **2**—1 pdr. Boilers: 4 Babcock. I.H.P. 2550 = 12 kts. Coal: 975 tons. Complement: 378. (Under refit for conversion into a receiving ship, 1940).

Auxiliaries—Colliers.

NEREUS. *Photo added 1921.*

NEREUS (1913), **PROTEUS** (1912). 6,275 tons. Dimensions: 522 × 62 × 27⅜ (*mean*). 2 screws. Boilers: 3 double-ended. H.P. 7000 = 14 kts. Fuel capacity (deadweight to designed draft): 10,500 tons cargo fuel, Bunker capacity, 2,000 tons. *Maximum* cargo capacity (close stowage): 11,800 tons coal + 1125 tons oil *or* 10,100 tons coal + 3050 tons oil. Guns: **4**—4 inch, 50 cal. Complement, 181.

Surveying Ships.

1940, *courtesy Grace Lines.*

BOWDITCH (ex-*Santa Inez*), (Burmeister & Wain, Copenhagen, 1929). Purchased 1939. Displacement: 6,000 tons. Dimensions: 380 × 53 × 21½ feet. Machinery: Diesel. 2 shafts. B.H.P.: 4,700 = 14 kts. Oil fuel: 864 tons. To replace *Hannibal*, below.

1934 *Photo.*

HANNIBAL (ex-S.S. *Joseph Holland*). (Sunderland, 1898). Ex-Fuel Ship. 2,160 tons. Dimensions: 274 × 39½ × 15½ feet. Guns: **1**—4 inch, 50 cal., **2**—3 inch AA. Complement, 163. H.P. 1100 = 9 kts. Coal: 855 tons.

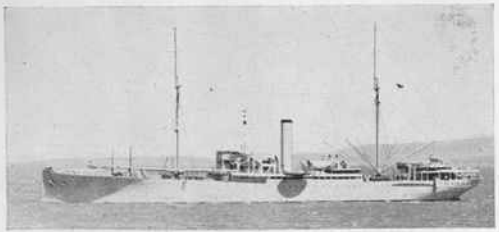
Auxiliaries—Store Ships.

Ex-*Challenge* (1939), ex-*Comet* (1940), ex-*Donald McKay* (1939). 6,085, 6,085 and 6,200 tons *gross*, respectively. Dimensions: 435 × 63 × 26 feet. Machinery: Geared turbines in first 2 ships, Diesel in third. Speed: 15·5 kts.

ARCTIC. 1926 *Official Photo.*

ARCTIC (1919), **BOREAS** (1919), **YUKON** (1920). 4,980 tons. Dimensions: 416½ × 53 × 26½ feet. Guns: 2—5 inch, 51 cal., 4—3 inch AA. (not always carried). Parsons geared turbines in *Arctic* and *Yukon*, Curtis in *Boreas*. Designed H.P. 2800 = 11 kts. Boilers: 4 Heine, except *Yukon*, 3 single-ended. Oil: 1794 tons. Complements: 166 (*Y*), 180 (*B*), 211 (*A*).

Note.—Original names of these three ships before being acquired by U.S. Navy were *Yamhill*, *Yaquina* and *Mehanno*, respectively.

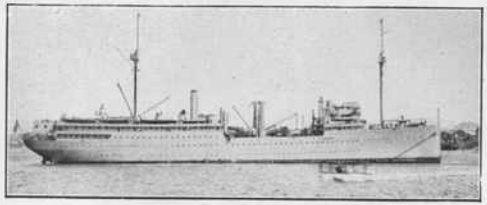


1935, *Bear Photo Service.*

BRIDGE (Boston N.Yd., May 18th, 1916). 5,000 tons. Complement, 212. Dimensions: 423 × 55¼ × 20⅝ feet (*mean* draught). Guns: 4—5 inch, 50 cal., 1—3 inch AA., 2—3 pdr. Boilers: 2 White-Forster. H.P. 4000 = 14 kts. Reciprocating engines. 2 screws. Fuel: 1000 tons *oil*. Fitted with towing winch, and has been employed as target towing vessel.

Auxiliaries—Repair Ships.

VULCAN. Displacement: 9,100 tons. Laid down Dec. 26, 1939, by New York Shipbuilding Corporation under 1939 Programme. A second ship of this type is to be built under 1940 Supplementary Programme.

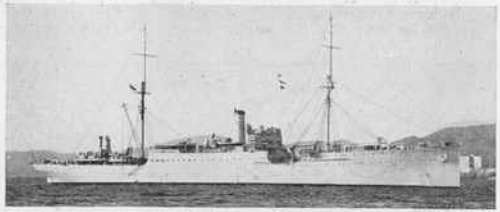


1925 *Photo, W. W. Stewart, Esq.*

(*Pacific Fleet.*)

MEDUSA (Puget Sound N.Yd., April 16th, 1923). 8,125 tons. Dimensions: 460 × 70 × 20 feet. Guns: 4—5 inch, 51 cal., 2—3 inch AA., 2—6 pdr., 4—30 cal. Parsons geared turbines. Designed S.H.P. 7000 = 16 kts. 2 Bureau Modified Thornycroft boilers. Oil: 1834 tons. Complement, 466 (including an exceptionally full technical staff).

Note.—The *Medusa* was specially designed with a view to the execution of permanent as well as temporary repairs. She carries two 8 ton derricks, besides one 20 ton, one 10 ton and two 8 ton shear legs. Machinery is installed aft. Equipment includes a medical and hospital section.



VESTAL. 1935, *Bear Photo Service.*

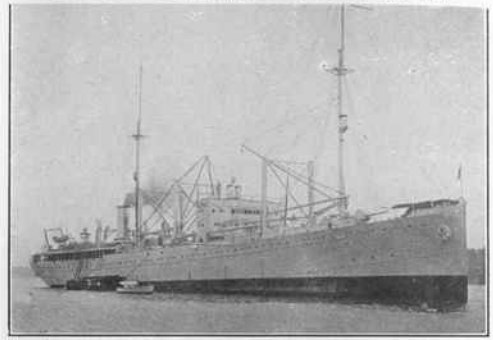
PROMETHEUS (Mare Island N.Yd., 1908). **VESTAL** (New York N. Yd., 1908). Displacement 6,625 tons. Dimensions: 450 × 60 × 18 feet. Guns: 4—5 inch, 50 cal., 1—3 inch AA., 4—30 cal. Machinery: Triple expansion. Boilers: *Prometheus*, 6 Babcock; *Vestal*, 2 White-Forster. H.P. 7,500 = 16 kts. Oil: *Prometheus*, 872 tons; *Vestal*, 928 tons. Complement: 466. (Both re-engined in 1937).

Note.—Were originally named *Ontario* and *Erie*, respectively.

Auxiliaries—Ammunition Ships.

Ex-*Sea Witch* (1940). 7,886 tons *gross*. Dimensions: 468½ × 69½ × 26 feet. Machinery: 4 sets Diesels. B.H.P.: 9,000 = 15·5 kts.

Ex-*Shooting Star* (1940). 6,200 tons *gross*. Dimensions: 435 × 63 × 26 feet. Machinery: Diesel. Speed: 15·5 kts.



PYRO. 1921 *Official Photo.*

NITRO, PYRO (both launched Dec. 16th, 1919, at Puget Sound N.Yd.). 7,025 tons. Dimensions: 460 × 61 × 21 feet. Guns: 4—5 inch, 2—3 inch AA. Boilers: 4 Babcock. S.H.P. 6700 = 13·3 kts. (*N.*), 13·2 kts. (*P*). Parsons (geared) turbines. 2 screws. Fuel capacity: 1078 tons coal (*Nitro*), 1493 tons oil (*Pyro*). Fitted with plant for powder testing and cooling, also large cold storage capacity for meat, in addition to ammunition-carrying spaces. Complement, 195.

Auxiliaries—Oilers.

1940, *U.S. Maritime Commission, courtesy "Our Navy."*

CIMARRON (Jan. 7, 1939), **NEOSHO** (April 29, 1939), **PLATTE** (July 8, 1939). Displacement: 8,000 tons (16,375 tons deadweight). Complement: 64. Dimensions: 525 (*w.l.*), 553 (*o.a.*) × 75 × 29⅔ feet. Machinery: Geared turbines. S.H.P.: 13,000 = 18 kts. (*Cimarron* trials, 19·28 kts.). Radius reported to be 18,000 miles. Cargo capacity exceeds 6,000,000 gallons. Provided for under 1938 Programme.

Auxiliaries—Oilers—*continued.*

SABINE (ex-*Esso Albany*), **SALAMONIE** (ex-*Esso Columbia*), **KASKASKIA** (ex-*Esso Richmond*), **SANTEE** (ex-*Seakay*), **SANGAMON** (ex-*Esso Trenton*); also ex-*Markay*, ex-*Esso Annapolis*, ex-*Esso New Orleans*, ex-*Esso Raleigh* (all 1939–40). Generally similar to *Cimarron* class, in preceding paragraph. Acquired in October, 1940.

SALINAS. 1939. *Theo. N. Silberstein.*

RAPIDAN (1919), **SALINAS** (1920), **TIPPECANOE** (1920), **RAMAPO** (1919), **SAPELO** (1919), **SEPULGA** (1920), **TRINITY** (1920). 5,375 tons. Dimensions: 463½ (*p.p.*) × 60 × 26½ feet (*mean* draught). Quad. Exp. reciprocating engines.† 3 S. E. boilers. I.H.P. 2900=10·5 kts. Guns: 2—5 inch, 51 cal., 2—3 inch AA. *Max.* cargo capacity: 11,145 tons oil fuel. Own fuel: 1109 tons oil. Complement, 107.

†Curtis turbine in *Trinity* and *Tippecanoe.*

KAWEAH (1919), **LARAMIE** (1920), **MATTOLE** (1920), 4,410 tons. Dimensions: 446 (*o.a.*) × 58 × 25½ feet. Guns: 2—5 inch, 51 cal., 2—3 inch AA. Reciprocating engines and 3 S. E. boilers. H.P. 2800=11 kts. Cargo capacity. 8850 tons. Own fuel, 1288 tons. Complement, 107.

KANAWHA (& MAUMEE). 1935, *Bear Photo Service.*

Auxiliaries—Oilers—*continued.*

BRAZOS (and remainder). 1927 *Official Photo.*

CUYAMA (1916), **MAUMEE** (1915), **KANAWHA** (1914). 4,990 tons. Complement: 249—475.

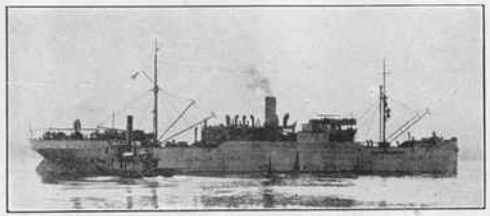
BRAZOS (1919), **NECHES** (1920), **PECOS** (1921), 5,400 tons. Complements: 227—317. Dimensions: 475¾ (*o.a.*) × 56 × 26¾ feet (*mean*). Guns: 4—5 inch, 51 cal., 2—3 inch. Machinery: Vert. triple expansion. H.P.: 5,200 = 14 kts.; except *Maumee*, 6 cyl. 2-cycle Diesels, H.P.: 5,000 = 14 kts. Boilers: 4 Ward in *Neches* and *Pecos*, 4 B. & W. in others, except *Maumee*, 2 B. & W. Cargo capacity: 7,850 tons. Own fuel: 820 tons. *Cuyama*, *Kanawha*, *Maumee*, have towing winches.

Auxiliaries—Cargo Ships.

ARCTURUS (ex-*Mormachawk*) and another (ex-*Surprise*), (1940). 6,200 tons *gross*. Dimensions: 435 × 63 × 26 feet. Machinery: Diesel. Speed: 15·5 kts.

(Appearance as *Bowditch*, on an earlier page.)

WILLIAM WARD BURROWS (ex-*Santa Rita*) (1929). Ex-Grace liner, purchased 1939. Displacement: 6,000 tons. Dimensions: 380 × 53 × 21½ feet. Guns: 2—5 inch (dual purpose). Machinery: Diesel. 2 shafts. B.H.P.: 4,700 = 13 kts. Oil fuel: 864 tons.



ANTARES (ex-*Nedmac*) (1919). 5,050 tons.

REGULUS (ex-*Glenora*), **GOLD STAR** (ex-*Arcturus*, ex-*Gold Star*) (1920). 4,860 tons.

Auxiliaries—Cargo Ships—*continued.*

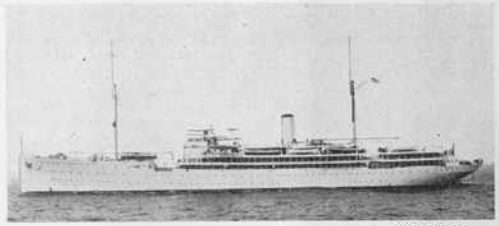
CAPELLA (ex-*Comerant*) (1920), **SIRIUS** (ex-*Saluda*), (1919), **SPICA** (ex-*Shannock*), (1919), **VEGA** (ex-*Lebanon*), (1919). 4,070 tons. Dimensions: 401 × 54 × 24½ feet. Guns: 2—5 inch, 51 cal., 4—3 inch AA. Curtis geared turbines. 3 Babcock boilers. H.P.: 2,500 = 11·5 kts. Oil: 1,222 tons. Complement: 106.

Antares flagship Training Squadron, Scouting Fleet, Atlantic, and is fitted as Target Repair Vessel, carrying special photographic apparatus for recording results of target practice.

Auxiliaries—Hospital Ship.

Refitting.

SOLACE (ex-*Iroquois*), (1927). Acquired 1940. 6,209 tons *gross*. Dimensions: 394½ × 62½ × — feet. Machinery: 4 sets geared turbines. 2 shafts. S.H.P.: 12,000 = 19 kts. Oil fuel.



1935 *Official.*

RELIEF (Dec., 1919, Philadelphia N.Y.). 7,275 tons. Dimensions: 460 (*p.p.*) × 61 × 19½ feet. Designed H.P. 5250 = 16 kts. Parsons geared turbines. 2 screws. 3 Babcock and Wilcox boilers. Oil: 1951 tons. Complement, 397.

Auxiliaries—Transports.

BARNETT 1940, *courtesy Grace Lines.*

BARNETT (ex-*Santa Maria*), **McCAWLEY** (ex-*Santa Barbara*), (1928). 7,712 tons *gross*. Dimensions: 466 × 64 × 25½ feet. Guns: 1—5 inch, 3—3 inch, some smaller. Machinery: Sulzer Diesel. 2 shafts. B.H.P.: 8,000 = 16 kts. Complement: 197.

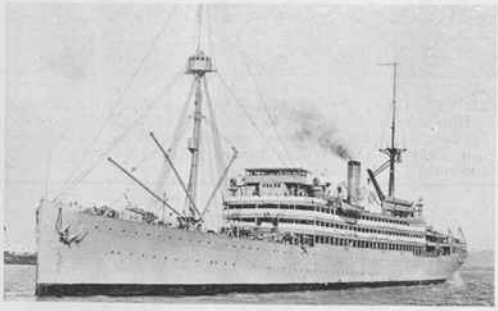
Auxiliaries—Transports—*continued.*

HARRIS (ex-*President Grant*, ex-*Pine Tree State*), **ZEILIN** (ex-*President Jackson*, ex-*Silver State*), (1921). 14,119 and 14,124 tons *gross*. Dimensions: 517 × 72¼ × 30½ feet. Machinery: 4 sets geared turbines. 2 shafts. S.H.P.: 12,000 = 18 kts. 8 watertube boilers. Oil fuel: 3,315 tons.

WHARTON (ex-*Southern Cross*), (1920). Displacement: 10,000 tons. 13,789 tons *gross*. Dimensions: 516¼ × 72¼ × 30½ feet. Machinery: 4 sets geared turbines. 2 shafts. S.H.P.: 12,000 = 17 kts. 8 watertube boilers. Oil fuel: 3,315 tons.

1935, *Bear Photo Service.*

CHAUMONT (Hog Island, 1920). 8,300 tons (10,700 tons *full load*). Dimensions: 448 × 58 × 23 feet. Guns: *Nil*. 1 screw. G.E. Curtis geared turbines. Boilers: 6 Babcock. S.H.P.: 6,000 = 15 kts. Oil: 1,473 tons. Complement: 249.



1935, *Bear Photo Service.*

HENDERSON (1916). 7,750 tons (10,000 tons *full load*). Complement: 424. Dimensions: 483⅜ (*o.a.*) × 61 × 20 feet (*mean* draught). Guns: **8**—5 inch, 51 cal., **2**—3 inch, **2**—3 pdr., **2**—1 pdr. H.P.: 4,000 = 14 kts. Reciprocating engines. Boilers: 3 Babcock. 2 screws. Fuel: 1,400 tons oil. Has Sperry gyro. stabilisers. To take 2,000 men and 32 horses.

COLHOUN (1918), **GREGORY** (1918), **LITTLE** (1917), **McKEAN** (1918), **STRINGHAM** (1918). Ex-destroyers. Displacement: 1,060 tons. Dimensions: 309 (*w.l.*), 314¼ (*o.a.*) × 30¼ × 8½ feet. Machinery: Curtis geared turbines. S.H.P.: 18,000 = 32 kts. Boilers: 4 Yarrow.

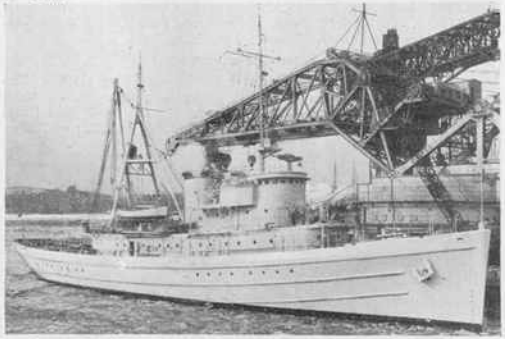
Auxiliaries—Transports—*continued.*

1940, *O. A. Tunnell, courtesy "Our Navy."*

MANLEY (1917). Ex-destroyer. Displacement: 1,020 tons. Dimensions: 308 (*w.l.*), 315½ (*o.a.*) × 30⅜ × 7½ feet (*mean* draught). Guns: **4**—4 inch, 50 cal. Machinery: Parsons geared turbines. S.H.P.: 18,000 = 32 kts. Boilers: 4 Normand.

Auxiliaries—Fleet Tugs.

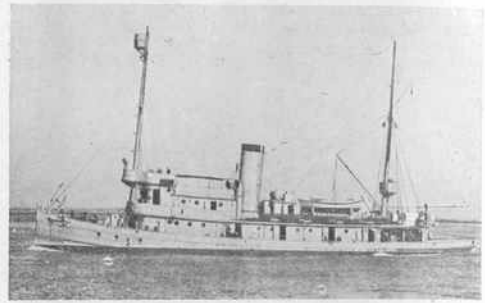
Note.—Other and Smaller Tugs attached to Naval Districts, rated as "Harbor Tugs."



NAVAJO. 1940 *courtesy "Our Navy."*

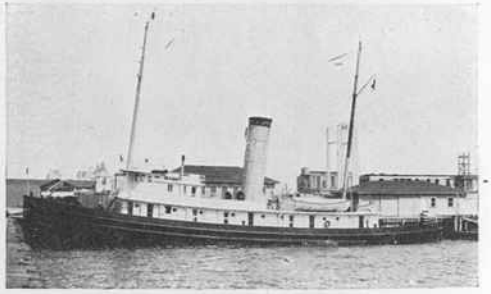
CHEROKEE (Nov. 10, 1939), **NAVAJO** (Aug. 17, 1939), **SEMINOLE** (Sept. 15, 1939). All built by Bethlehem New York Plant, Staten Island. Displacement: 1,150 tons. Complement: 61. Dimensions: 205½ × 38½ × 12 feet. Machinery: 4 sets Diesel engines with electric drive. Designed speed: 16·25 kts. (16·7 kts. on trials). Fitted with salvage pump and equipment. Cost $1,220,000 each.

Auxiliaries—Fleet Tugs—*continued.*



PINOLA. 1932 *Photo, Official.*

ALGORMA, BAGADUCE (ex-*Ammonoosuc*), **IUKA, KALMIA, KEOSANQUA, KEWAYDIN, MAHOPAC** (ex-*Kickapoo*), **MONTCALM** (ex-*Kineo*), **NAPA** (ex-*Yucca*), **PINOLA** (ex-*Nipsic*), **SCIOTA** (ex-*Watauga*), **SUNNADIN** (ex-*Katahdin*), **TATNUCK** (ex-*Iosco*), **UMPQUA, WANDANK.** All launched 1919–20. 795 tons. **ALLEGHENY** (ex-*Huron*), **SAGAMORE** (ex-*Comanche*), (1917). 735 tons. Dimensions: 149½ (*pp.*) × 30 × 11¾/12½ feet (*mean*). Guns: **2**—3 inch AA. I.H.P.: 1,800 = 13 to 14 kts. Oil: 279 tons.

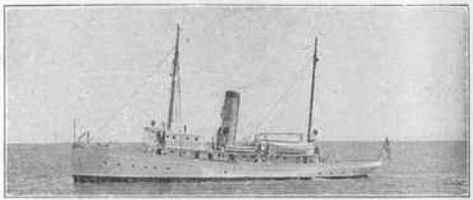


TAMAROA. 1931 *Photo*

CAHOKIA, TAMAROA (1919). **BAY SPRING** (1920). 510 tons. Dimensions: 151½ × 27½ × 10½ feet. Guns: **2**—1 pdr. Speed: 11 kts. Oil fuel.

Auxiliaries—Fleet Tugs—*continued.*

UNDAUNTED (1917). 475 tons. Dimensions: 143 (*o.a.*) × 28 × 15 feet. Guns: 1—3 inch AA. I.H.P.: 1,000 = 11·5 kts. Oil fuel: 329 tons.



ACUSHNET (1908). Steel, 1 screw. 645 tons. Dimensions: 152 × 29 × 13 feet. Speed: 12·5 kts.

SONOMA (1912) and **ONTARIO** (1912). 1,030 and 1,080 tons. Dimensions: 175 (*p.p.*) × 34 × 12½ feet (*mean*). Guns: 1—3 inch, 1—3 inch AA. Speed: 13 kts. Coal: 440 tons (*average*).

GENESEE (ex-*Monocacy*, 1905, bought 1917). 745 tons. Guns: 2—3 inch. I.H.P. 1000 = 15 kts. Coal: 286 tons.

Mine-Sweepers.

Notes.—Avocet, Heron, Lapwing, Thrush, Gannet, Pelican, Sandpiper, Swan, and *Teal* are all classed as Aircraft Tenders (small type) for Patrol Planes; each carries a seaplane aft. *Seagull, Quail,* have been used as Submarine Tenders; *Redwing* has been transferred to Coast Guard (see a later page); *Falcon, Mallard, Chewink, Ortolan, Pigeon, Widgeon* classed as Submarine Rescue Vessels; *Whippoorwill* at Pearl Harbor.

RAVEN, OSPREY (Both Aug. 24, 1940). **AUK.** Laid down under 1938 and 1940 Programmes at Norfolk Navy Yard. Displacement: 650 tons. Fairbanks Morse Diesel engines. 8 more of this type are being ordered.

ALBATROSS (ex-*Illinois*), **BLUEBIRD** (ex-*Maine*), **BULLFINCH** (ex-*Villanova*), **CARDINAL** (ex-*Jeanne d'Arc*), **CATBIRD** (ex-*Bittern*), **CURLEW** (ex-*Kittiwake*), **FLICKER** (ex-*Delaware*), **GOLDFINCH** (ex-*Fordham*), **GRACKLE** (ex-*Notre Dame*), **GULL** (ex-*Boston College*), **KITE** (ex-*Holy Cross*), **LINNET** (ex-*Georgetown*). All ex-trawlers, acquired 1940 for conversion into Minesweepers. 9 seiners are reported to have been purchased on the West Coast for a similar purpose.

Mine-Sweepers—*continued.*

HOGAN (1918), **HOWARD** (1919), **PALMER** (1918), **STANSBURY** (1919). Ex-destroyers. Displacement: 1,060 tons. Dimensions: 309 (*w.l.*), 314½ (*o.a.*) × 30½ × 8½ feet. Machinery: Curtis geared turbines. S.H.P.: 25,000 = 35 kts. Boilers: 4 Yarrow.

("Bird" Class—41 Boats.)

Ortolan. 1935, *Bear Photo Service.*

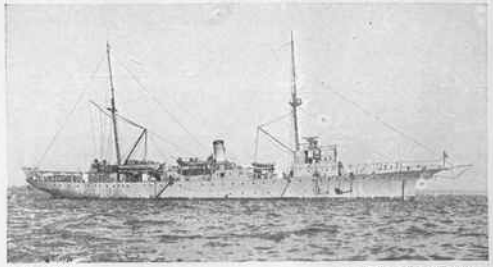
LAPWING, OWL, ROBIN, CHEWINK, CORMORANT, GANNET (all built by Todd S. B. Co., Tebo Yacht Basin, Brooklyn, N. Y.). **TANAGER, ORIOLE, GREBE, MALLARD, ORTOLAN, PEACOCK** (all built by Staten Id. S.B. Co., N. Y.). **AVOCET, BOBOLINK, LARK, PIGEON** (all built by Baltimore D. D. & S. B. Co.). **PELICAN, FALCON, SEAGULL, TERN** (all built by Gas Engine & Power Co., Morris Heights, N. Y.). **TURKEY, WOODCOCK, QUAIL, PARTRIDGE** (all built by Chester S. B. Co.). **SANDPIPER, WARBLER, VIREO, WILLET** (all built by Philadelphia Navy Yard). **SWAN, WHIPPOORWILL, BITTERN** (all built by Alabama S. B. & D. D. Co., Mobile). **WIDGEON, TEAL, BRANT** (all built by Sun S. B. Co., Chester). **KINGFISHER, RAIL** (both built by Puget Sound Navy Yard). **EIDER, THRUSH** (both built by Pusey & Jones, Wilmington). **FINCH, HERON** (both built by Standard S. B. Co., N. Y.). **PENGUIN** (built by New Jersey D. D. & T. Co., Elizabethport).

All built 1918-19. Displacement: 840 tons except *Chewink*, 960 tons; *Falcon, Mallard, Ortolan, Pigeon, Widgeon*, all 1,060 tons. Dimensions: 187⅝ (*o.a.*) × 35½ × 8⅔ to 10½ feet (*mean* draught). Guns: 2—3 inch AA. Machinery: 1 set triple expansion and 2 B. & W. boilers. Designed I.H.P. 1400 = 14 kts. Oil fuel only: 275 tons. Complement, 52 to 90 (according to employment of ship).

Auxiliaries—Miscellaneous.

(Experimental Vessel).

SEMMES (1918). Ex-destroyer of Flush Deck type. Displacement: 1,190 tons. Dimensions: 311 (*w.l.*), 314½ (*o.a.*) × 30⅝ × 13½ feet (*mean* draught). No guns mounted. Machinery: Westinghouse geared turbines. S.H.P.: 26,000 = 35 kts. Boilers: 4 White-Forster.



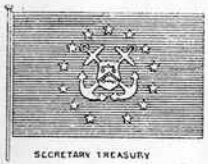
Sumner. 1919 *U.S. Navy Photo.*

SUMNER (ex-*Bushnell*). (Seattle Constrn. and D.D. Co., 1915). 2,900 tons. Complement: 217. Dimensions: 350½ × 45⅝ × 15 feet (*mean* draught). Guns: 4—5 inch (51 cal.). Machinery: Parsons turbines with reduction gear. Boilers: 2 Yarrow. H.P. (*on trials*): 2,617 = 14·15 kts. Fuel: 728 tons *oil.* (Ex-Submarine Tender and Surveying Ship.)

COAST GUARD.

Notes.

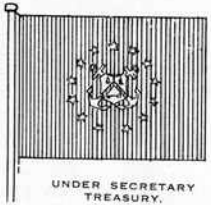
Officially Revised, 1940, from materials furnished by courtesy of the Commandant, U.S. Coast Guard, Treasury Department, Washington, D.C Photos also official unless otherwise acknowledged.



SECRETARY TREASURY

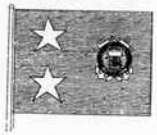
COAST GUARD STANDARD.

ASST SECRETARY TREAS.



UNDER SECRETARY TREASURY.

ENSIGN



COMMANDANT'S FLAG.

Red White Blue

I.—ESTABLISHMENT.

The United States Coast Guard was established by the Act of Congress approved January 28, 1915, which consolidated the Revenue Cutter Service founded in 1790 and the Life Saving Service founded in 1878. The act of establishment provides that " the Coast Guard shall constitute a part of the military forces of the United States and shall operate as a part of the Navy, subject to the orders of the Secretary of the Navy, in time of war or when the President shall so direct ". The Lighthouse Service, founded in 1789, was transferred to the Coast Guard on July 1, 1939, as a result of the President's Reorganization Plan No. II.

II.—DUTIES.

1. The peacetime duties of the Coast Guard have as their principal objective safety and security at sea through enforcement of the navigation laws, saving life and assistance to vessels in distress, and maintenance of aids to navigation.
2. Law enforcement duties, performed for all departments of the government, include those relating to customs, movements and anchorage of vessels, immigration, quarantine, neutrality, navigation and other laws governing merchant vessels and motor boats, safety of life on navigable waters during regattas, oil pollution, sponge fisheries, protection of game, seal and fisheries in Alaska, protection of bird reservations established by Executive Order and suppression of mutinies.
3. Life saving and assistance duties include maintenance of coastal stations and communication lines on the continental coasts of the United States, conduct of the International Ice Patrol, derelict destruction, winter cruising on the Atlantic coast, extension of medical aid to fishing vessels, Bering Sea Patrol and flood relief work. In its humanitarian duties the Coast Guard renders aid and assistance to vessels in distress irrespective of nationality and extends its protection, if needed, to all shipping within the scope of its operations.
4. The Coast Guard establishes and maintains navigation aids, consisting of lighthouses, lightships, radiobeacons, buoys, and unlighted beacons on the sea and lake coasts of the United States, on the rivers of the United States as authorized by law, and on the coasts of all other territory under United States jurisdiction, with the exception of the Philippine Islands and Panama.
5. In time of war the Coast Guard operates as a part of the Navy. A military organization was adopted at the time the service was established in 1790, before the establishment of the Navy Department. This organization has been continued since that date for the purpose of maintaining the general efficiency of the operation of the service in its law enforcement duties in time of peace. The executive action under which the Coast Guard operates as a part of the Navy in time of war is similar in effect to a measure of mobilization. In this respect the Coast Guard is a potential reserve force for the Navy. No personnel are normally assigned or equipped as land troops. Vessels are prepared in emergencies to equip landing forces with small arms and machine guns; stations are similarly prepared to undertake emergency police duties in a more limited sense, because of the smaller units involved, but in both cases these duties would be incidental to the primary purpose of the service, the enforcement of civil law and the saving of life and property.

III.—ADMINISTRATION.

Secretary of the Treasury : The Honourable Henry Morgenthau, Jr.
Assistant Secretary of the Treasury :* The Honourable Herbert E. Gaston.
Headquarters : (Washington, D.C.)
Commandant : Rear-Admiral R. R. Waesche.

* The Assistant Secretary has immediate supervision of the Coast Guard.

IV.—ORGANIZATION.

For the administration and operation of the Coast Guard, the United States, including its territories and insular possessions (except the Philippine Islands), and the waters adjacent thereto are divided into 13 districts, each under the command of a district commander operating directly under the Commandant of the Coast Guard.

V.—PERSONNEL.

(Total authorized complement : 14,128.)
Ranks : Rear Admiral (2).
Engineer-in-Chief (1) (Ranks as Rear Admiral)

	Line	Engineering
Captain	23	8
Commander	48	12
Lieutenant Commander	89	—
Lieutenant	178	—
Lieut. (j.g.) and Ensign	378	—

Professors : 5 (Ranks from Ensign to Commander)
Chief Warrant Officers : 427. Warrant Officers : 229.
Petty Officers and Men : 12,728. (Enlist for three years ; pay as U.S. Navy.)
Uniforms of officers and men are similar to those of U.S. Navy, but commissioned officers wear a gold shield on the sleeve instead of a star, and cap device is a gold spread-eagle, the talons grasping a horizontal foul anchor. A silver shield is mounted on the eagle's breast. Men of Coast Guard wear a shield on the sleeve.

VI.—VESSELS.

Coast Guard vessels or boats more than 65 feet in length, except lightships, having a specifically designated commanding officer and standard authorized complements, are designated Coast Guard cutters. On July 1, 1940, there were in commission 267 cutters, 41 light vessels, and approximately 3,300 lifeboats and other small boats of various types.

VII.—AVIATION.

Air Stations in commission : 10. Location : Salem, Mass. ; Charleston, S.C. ; New York, N.Y. ; Miami, Fla. ; St. Petersburg, Fla. ; Biloxi, Miss. ; San Diego, California ; Port Angeles, Washington ; Elizabeth City, N.C. ; San Francisco, California.

VIII.—U.S. MARITIME SERVICE.

The establishment of the U.S. Maritime Service was authorized in June, 1938, as a part of the U.S. Maritime Commission. The administration of the service is under the immediate supervision of the Commandant of the Coast Guard. The organization maintains training stations for unlicensed personnel at New York, N.Y., and Alameda, California. Training stations for men with no previous seagoing experience are maintained at Boston, Mass., and St. Petersburg, Florida.

The training ships *American Sailor, American Seaman, Northland, Joseph Conrad,* and *Tusitala* are operated by the service, the latter two being square-rigged ships.

Enrolment in the Maritime Service for experienced personnel of the merchant marine is limited to licensed and unlicensed men who have served at least 12 months within the past three years in American merchant ships of 500 gross tons or over. Enrolment of inexperienced men is limited to citizens between 18 and 23 years of age.

GEO. W. CAMPBELL 1938, *Official.*

Observe seaplane 1939, *Official.*

GEORGE W. CAMPBELL **SAMUEL D. INGHAM**

WILLIAM J. DUANE **ROGER B. TANEY**

All laid down May 1, 1935 at Philadelphia Navy Yard and launched June 3, 1936.

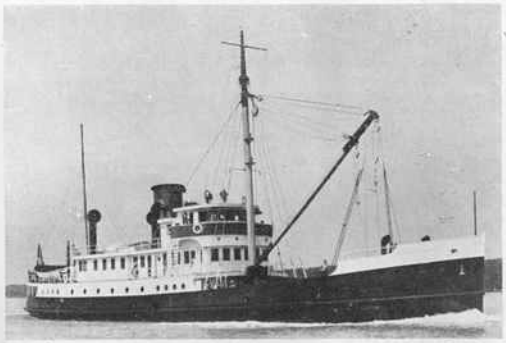
ALEXANDER HAMILTON **JOHN C. SPENCER**

Both laid down at New York Navy Yard, Sept. 11, 1935, and launched Nov. 10, 1936, and Jan. 6, 1937, respectively.

GEORGE M. BIBB

Laid down at Charleston Navy Yard, Aug. 15, 1935 and launched Jan. 14, 1937.

Standard displacement: 2,000 tons. Dimensions: 308 (*w.l.*), 327 (*o.a.*) × 41 × 11½ feet (*mean* draught), 12½ feet (*max.*). Guns: 2—5 inch, 51 cal. (some may have 3), 2 quad. M.G. AA., 2—6 pdr. (with provision for mounting a fourth 5 inch if needed). *G. W. Campbell* has been rearmed experimentally with 10—3 inch AA. 1 Seaplane carried in some. Westinghouse geared turbines. 2 shafts. S.H.P.: 6,200 = 20 kts. 2 wt. boilers. Fuel: 572 tons. Feed water: 143 tons; fresh water: 109 tons. Cruising radius: 8,000 miles at 12·5 kts., 12,300 at 11 kts.



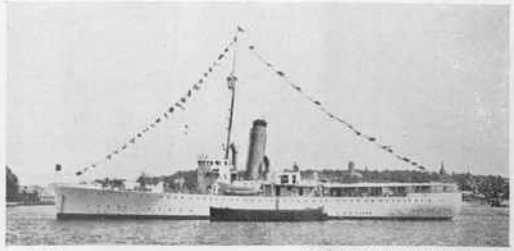
1940, *Official.*

WALNUT (Moore Dry Docks, 1939). Displacement: 880 tons. Dimensions: 175 × 32 × 10½ feet (*mean*). Machinery: Reciprocating. I.H.P.: 1,000 = 12 kts.

COMANCHE. 1935, *Official.*

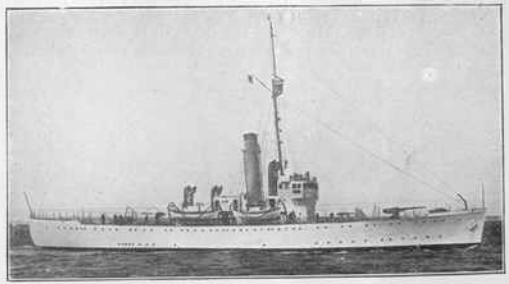
Name.	*Name.*
ALGONQUIN	**ONONDAGA**
COMANCHE	**TAHOMA**
MOHAWK	**ESCANABA**

All launched 1934 except *Escanaba*, 1932. Steel, strengthened for icebreaking. First 3 built by Pusey & Jones Corpn., Wilmington, Del., second 3 by Defoe Works, Bay City, Mich. Displacement: 1,005 tons. Complement: 60. Dimensions: 165 (*o.a.*) × 36 × 13½ feet. Guns: 2—3 inch, 50 cal., 2—6 pdr. Machinery: Turbines with double reduction gear. S.H.P: 1,500 = 13·5 kts. Radius: 5,000 miles. Approximate average inclusive cost, $584,000 each. These ships are reported to be very successful in service, making good headway through ice nearly 2 feet thick.



CAYUGA. 1937, *Registrator Osvi Janson.*

CAYUGA (Oct. 8, 1931). Built by United D.D. Co., Staten Island, N.Y. Steel. Displacement: 1,975 tons. Dimensions: 250 (*o.a.*) × 42 × 16 feet. Turbo-Electric engines (1 main, 2 auxiliary). H.P.: 3,220 = 16 kts. 2 Babcock & Wilcox boilers. Oil fuel: 335 tons. Guns: 2—5 inch, 2—6 pdrs. Radius: 8,000 miles.

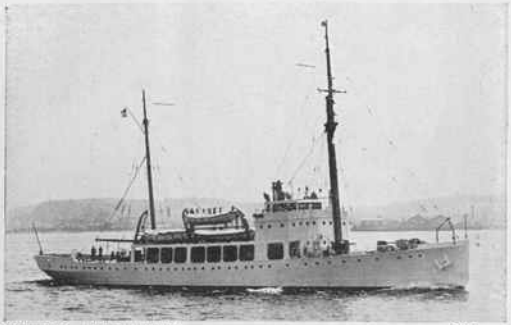


CHELAN. 1929 *Photo.*

ITASCA, SEBAGO, SARANAC, SHOSHONE. Displacement: 1,975 tons. Built 1930 by Gen. Eng. & Dry Dock Co., Oakland.

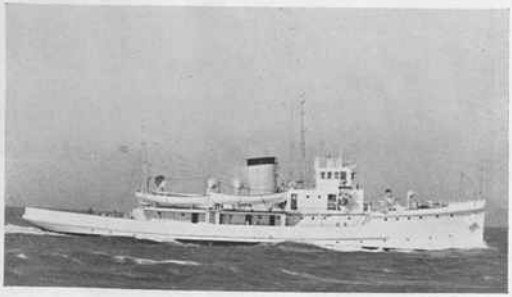
CHELAN, CHAMPLAIN, MENDOTA, PONTCHARTRAIN, TAHOE. Displacement: 1,983 tons. Built 1928–29 by Bethlehem Shipbuilding Corporation at Quincy, Mass.

All similar to *Cayuga* above.



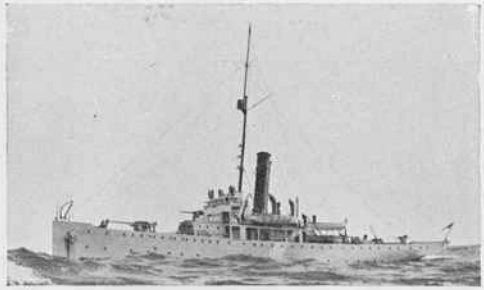
NORTHLAND. (Rig modified). 1936.

NORTHLAND (Newport News Shipbuilding Co., 1927). Built of steel, hull being of exceptionally massive construction, to withstand ice pressure. Forefoot cut away to above w.l. Displacement: 2065 tons. Dimensions: 216 (*o.a.*) × 39 × 15 feet (*mean* draught). Two 6-cyl. 4-cycle Diesel engines with electric drive. Total B.H.P. 1200 = 11 kts. 1 screw. Guns: 2—6 pdr. Built for Bering Sea Patrol, later used as a seagoing training ship, and refitted in 1940, with additional AA. guns and some protection, for Atlantic patrol duties.



1938, *Official.*

SHAWNEE (1922). Steel. 900 tons. Dimensions: 158½ × 30 × 14 feet. Guns: 2—1 pdr. Speed as refitted: 16 kts. Built by Union Con. Co., Oakland, Cal. Refitted completely, 1938.



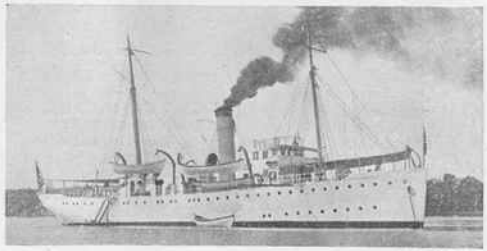
TAMPA.

HAIDA **MODOC**
MOJAVE **TAMPA**

All built 1921. Steel, 1 screw. 1780 tons. Dimensions: 240 × 39 × 16½ feet. Guns: 2—5 inch, 1—3 inch AA., 2—6 pdr. S.H.P. 2600 = 15 kts. Machinery: Turbo-electric (General Electric Curtis Turbine).
All built by Gen. Eng. & Dry Dock Co., Oakland, Cal.

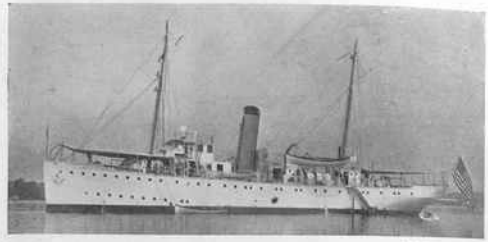
(For appearance, v. photo under "Auxiliaries—Mine Sweepers," in U.S. Navy Section.)

REDWING (1919.) Ex-Navy Minesweeper, taken over 1924. Steel, 1 screw. Standard displacement: 840 tons. Dimensions: 187⅝ × 35½ × 12½ feet (*mean* draught). Speed: 12·8 kts. Guns: 2—3 inch, 23 cal., 2—1 pdr.



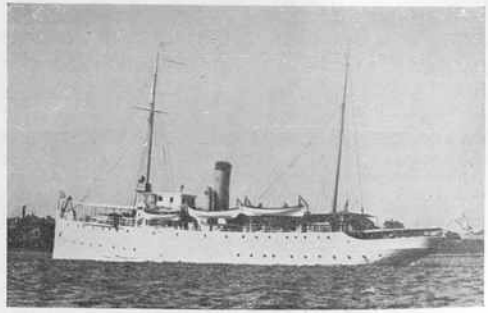
1920 *Photo.*

OSSIPEE (1915). Steel, 1 screw. 997 tons. Dimensions: 165½ × 32 × 11½ feet. Speed: 12 kts. Guns: 2—3 inch, 2—6 pdr., 2—1 pdr. Strengthened for ice navigation.



1920 *Photo.*

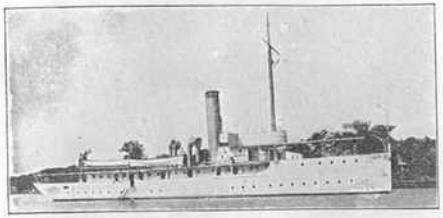
TALLAPOOSA (1915). Steel, 1 screw, 964 tons. Dimensions: 165½ × 32 × 11 feet, Speed: 11·8 kts. Oil fuel only. Guns: 2—3 inch, 50 cal., 2—6 pdr.



1919 *Photo, U.S. Navy Publicity Bureau.*

UNALGA (1912). Steel, 1 screw. 1181 tons. Dimensions: 190 × 32½ × 14 feet. Speed: 12 kts. Guns: 2—6 pdr.

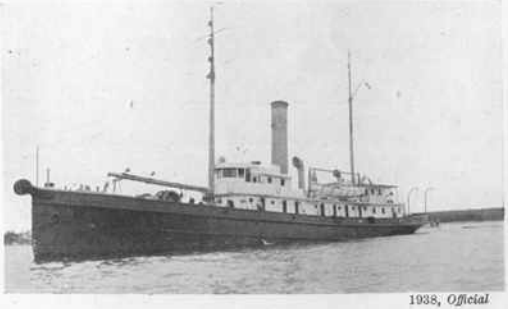
Cutters—*continued*



PAMLICO (1907). Steel, twin screw. 451 tons. Dimensions: 158 × 30 × 5¾ feet. Speed: 9·3 kts. Guns: 2—6 pdr.

Auxiliary Craft.

JUNIPER (May 18, 1940). Length: 177 feet. Machinery: Diesel-electric. B.H.P.: 1,100. Employed as Lighthouse Tender. (Others of this type are understood to be under construction.)



1938, *Official*

PEQUOT (ex-Minelayer *General Samuel M. Mills*, built 1909, transferred from War Department 1922). Steel, 1 screw. 950 tons. Dimensions: 166½ × 32½ × 11½ feet. 12 kts.

Cutters—Tug Type

Detailed to larger Maritime Ports to enforce Customs and Navigation Laws and the regulation of the anchorage and movements of vessels.

NAUGATUCK 1939, *Official*

ARUNDEL (June 24, 1939), **MAHONING** (July 22, 1939), **NAUGATUCK, RARITAN** (both March 23, 1939) Former pair built by Gulfport Works, Port Arthur, Texas; latter pair by Defoe Works, Bay City, Mich. Displacement: 328 tons. Dimensions: 110 × 26½ × 10½ feet (*mean* draught). Machinery: Diesel-electric. S.H.P.: 1,000 = 12 kts. Strengthened for icebreaking.

Note.—These 4 vessels are an improvement on design of *Hudson* class. Reported to be better sea boats.

TUCKAHOE. 1935, *Official.*

Calumet, Navesink, Tuckahoe, (Built at Charleston Navy Yard.) ***Hudson*** (Built at Portsmouth Navy Yard). All launched 1934. Steel. Displacement: 290 tons. Dimensions: 110½ × 24 × 10½ feet. Diesel engines. 1 shaft. H.P.: 800 = 12 kts. Radius: 2,000 miles.

Cutters—Tug Type—*continued.*

Davey (1908). Steel, 1 screw. 182 tons. Dimensions: 92¼ × 19 × 10½ feet. Guns: *Nil.* Speed: 10·5 kts.

Guthrie (1895). Iron, 1 screw. 149 tons. Dimensions: 88 × 17½ × 9 feet. Speed: 11 kts.

MANHATTAN. 1938, *Official.*

Manhattan (1918). Steel, 1 Screw. Ice Breaker, Salvage Vessel, Tug and Fire Float. 406 tons. Dimensions: 120¼ × 24 × 11¾ feet. Speed: 9·5 kts. Guns: 2—1 pdr.

Winnisimmet (1903). Steel, 1 screw. 182 tons. Dimensions: 96½ × 20½ × 9 feet. Speed: 12 kts.

U.S.A.—Coast Guard Cutters

2 new Cutters of 200 tons, Diesel-engined, were ordered in August 1940 from the Dubuque Boat and Boiler Works.

ARGO. (AURORA, DAPHNE, PERSEUS have only one funnel.) 1933 *Photo.*

17—165 ft. steel Cutters.

Argo	***Icarus***	***Dione***
Aurora	***Perseus***	***Nemesis***
Calypso	***Thetis***	***Nike***
Daphne	***Ariadne***	***Pandora***
Galatea	***Atalanta***	***Triton***
Hermes	***Cyane***	

Built during 1931–34. 337 tons. Dimensions: 165 × 25½ × 8½ feet. Guns: 1—3 inch, 23 cal., 2—1 pdr. Winton Diesel engines. 2 shafts H.P.: 1,300 = 16·5 kts.

Note.—Electra, of this class, renamed *Potomac* and converted into Presidential Yacht.

1934 *Photo, Official.*

1—100 ft. steel Cutter: **NANSEMOND.** (Defoe Boat & Motor Works, Bay City, Mich., 1926). Displacement: 210 tons. Dimensions: 99½ × 23 × 8 feet. Guns: 1—3 inch, 23 cal. Diesel engines. 2 shafts. Speed: 10 kts.

1939, *Official.*

32—125 ft. steel Cutters: ***Active, Alert, Antietam, Cahoone, Colfax, Crawford, Diligence, Dix, Ewing, Faunce, Frederick Lee, General Greene, Harriet Lane, Jackson, Kimball, Legare, Marion, McLane, Morris, Pulaski, Reliance, Rush, Tiger, Travis, Vigilant, Woodbury, Yeaton, Agassiz, Bonham, Boutwell, Cartigan, Nemaha*** (1926-27). Displacement: 220 tons. Dimensions: 125 × 23½ × 6½ feet. Guns: 1—3 inch, 23 cal. H.P. 300 = 14 kts. All being re-engined, and after refit vary considerably from original appearance.

Kimball and *Yeaton* employed on training duties.

1937 *Official.*

9—80 ft. Cutters: **CG** 406—414. (Jacksonville, Fla. 1937). Wood. Displacement: 52 tons. Dimensions: 80¾ × 15½ × 4 feet. Guns: 1—1 pdr. 4 petrol engines. 2 shafts. H.P.: 1,600 = 25 kts.

1932 *Photo.*

6—78 ft. Cutters: **CG** 400—405. (Newport News, 1931). Wood. Displacement: 43 tons. Guns: 1—1 pdr. H.P.: 1,070 = 21·7 kts.

CG 182 *Photo added* 1927.

44—75 ft. Cutters: **CG**—119 to **CG**—283. (1924–25). Wood. Displacement: 37 tons. Dimensions: 75 × 13½ × 4 feet. Petrol engine. H.P.: 400 = 13·5 kts. Guns: 1—1 pdr.

Note.—A boat of this type, *CG* 274, was sold to Nicaragua in 1938. Three more, CG 110, 144, 302, have been acquired by the Dominican Republic.

Cutters—*continued.*

1937 *Official.*

2—72 ft. Cutters: **CG** 440, 441. (Annapolis, Md., 1937). Wood. Displacement: 27 tons. Dimensions: 72 × 14½ × 3¾ feet. 4 petrol engines. 2 shafts. H.P.: 1,600 = 34 kts.

(Of similar appearance to *CG* 440).

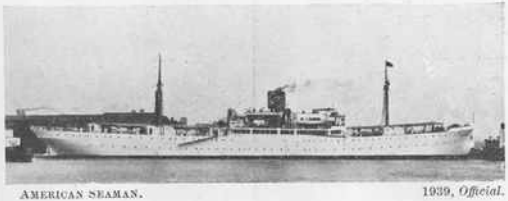
2—65 ft. Picket Boats: **CG** 442, 443. (Long Beach, Calif., 1937). Wood. Displacement: 30 tons. Dimensions: 65 × 14 × 3¾ feet. 4 petrol engines. 2 shafts. H.P.: 1,600 = 28 kts.

AB 26. 1937 *Official.*

A.B. 25, 26 (Boston, Mass., 1936). Wood, sheathed. Displacement: 72 tons. Dimensions: 63½ × 19 × 5 feet. Diesel engine. 1 shaft. H.P.: 300 = 10 kts.

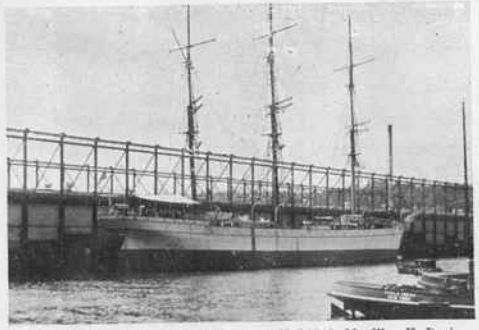
There are also 40 anchorage and boarding vessels, known as AB. boats and bearing numbers with the prefix AB, from 1 to 68, employed on harbour duties, which in view of their small size are not detailed here.

Auxiliary Craft
(Training Ships)



AMERICAN SEAMAN. 1939, *Official.*

AMERICAN SAILOR (*ex-Edgemont*), **AMERICAN SEAMAN** (*ex-Edgemoor*), (Both 1919). 6,865 and 7,038 tons *gross*, respectively. Dimensions: 409½ × 54½ × 27 feet. Machinery: Geared turbines. 1 shaft. H.P.: 2,500 = 11 kts. Accommodation for 210 ratings under training.



Added 1940, *Mr. Wm. H. Davis*

TUSITALA (ex-*Sophie*, ex-*Sierra Lucena*, ex-*Inveruglas*), (Greenock, 1883). Iron. 1,748 tons *gross*. Dimensions: 260 × 39 × — feet. Auxiliary Diesel.

PHILIPPINES.

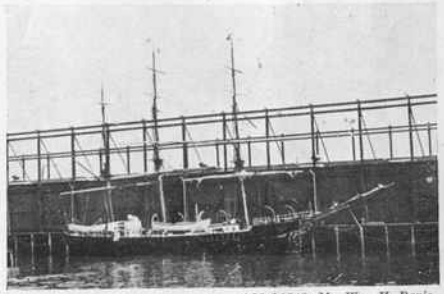
Motor Torpedo Boats.

Q III 1939, *Central Press.*

4 *Thornycroft type:*

Q III (1939). Dimensions: 65 × 13½ feet. 3 Thornycroft R.Y. 12 type 12-cyl. engines. B.H.P.: 1,800 = 39 kts. (41 kts. exceeded on trials). 2—18 inch tubes, 2 M.G. and D.C.

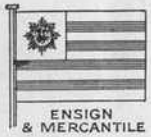
Q I (1938), **Q IV, Q V** (1939). Dimensions: 55 × 11 feet. B.H.P.: 1,200 = 40 kts.



Added 1940, *Mr. Wm. H. Davis.*

JOSEPH CONRAD (ex-*Georg Stage*), (Copenhagen, 1,882) 182 tons *gross*. Dimensions: 10½ × 25¼ × — feet. H.P.: 160.

URUGUAY.



ENSIGN & MERCANTILE

PAYSANDU *class.*

VANGUARDIA.

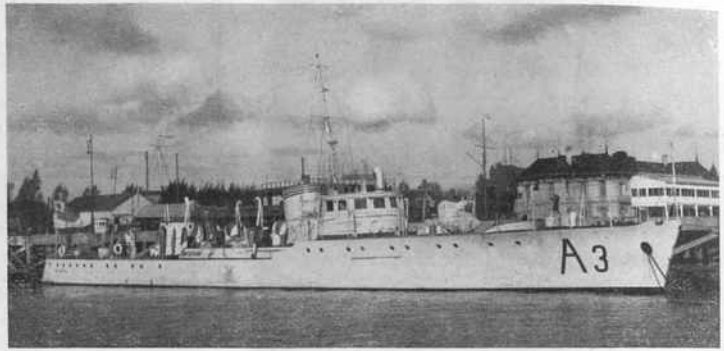
CORSARIO.

URUGUAY.

CAPITAN MIRANDA.

Minister of War and Marine : General don Julio A. Roletti.
Director of Navy : Rear-Admiral don Gustavo Schroder. *Personnel :* 938.
Form of Address : Capitan de Navio don ——, R.O.U.——
Mercantile Marine : (Official figures, 1939) 247 vessels of 35,952 tons *gross*.

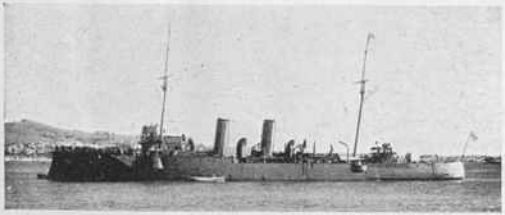
Patrol Vessels.



RIO NEGRO. 1939, *Official.*

PAYSANDU (July 21, 1935), **RIO NEGRO** (Aug. 22, 1935), **SALTO** (Aug. 11, 1935). All built by Cantieri Navali Riuniti, Ancona. *Standard* displacement : 180 tons. Complement, 51. Dimensions : 137½ × 19 × 5½ feet. Guns : 2—3 inch, 2—47 mm. AA., 2 M.G. 2 sets Diesels. B.H.P. : 1,000 = 17 kts. Fuel : 18 tons. Radius : 4,000 miles at 10 kts. Pendant Nos. are *A* 1, *A* 3 and *A* 2, respectively.

Sloop.



1936, *Nautical Photo Agency.*

URUGUAY (Vulkan, Stettin, 1910). Displacement : 1,150 tons. Complement : 125. Dimensions : 278¾ (*pp.*) × 30½ × 12 feet (*max.* draught). Guns (Skoda) : 2—4·7 inch, 45 cal., 4—3 inch, 6—1 pdr. (Vickers), 4 M.G. Torpedo tubes : 2—18 inch *above water*. Armour : ⅜″ nickel steel over boilers and engines. 4 Normand boilers. I.H.P. : 8,000 = 23 kts. Coal : 210 tons = 3,000 miles at 10 kts.

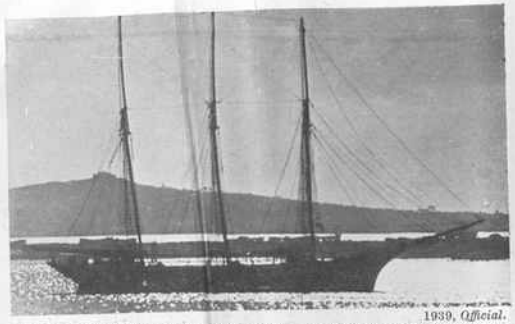
Note.—Is fitted for service as Training Ship for midshipmen.

Surveying Vessel.

1932 *Photo, Official,*

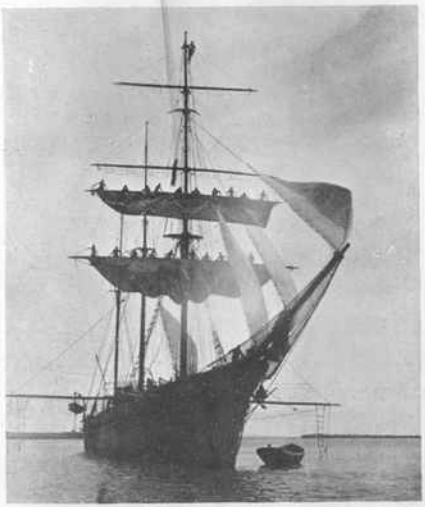
CAPITAN MIRANDA (S.E. de C.N., Matagorda, Cadiz, 1930). 516 tons. Dimensions : 148 (*p.p.*) × 28 × 10 feet. 1 Diesel (M.A.N.). H.P. 500 = 10·5 kts. Oil fuel : 45 tons.

Training Ships.



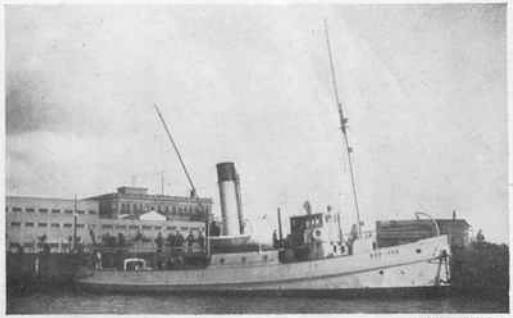
1939, *Official.*

ASPIRANTE (1919) (ex-*Exir-Dallen*, ex-*Parodi*, ex-*Trinidad*, ex-*Gelmirez*). Purchased 1938, for use as a Training Ship. Displacement: 250 tons. Dimensions: 104¾ × 24½ × — feet.



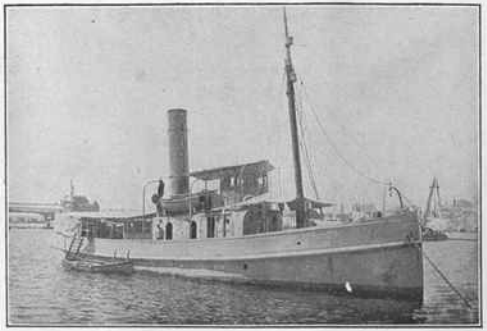
DIEZ Y OCHO DE JULIO (ex-*Normandy*), (Leith, 1879). Displacement: 764 tons. Dimensions: 194 (*pp.*) × 26 × 15¼ feet.

Tenders. (rated as Despatch Vessels)



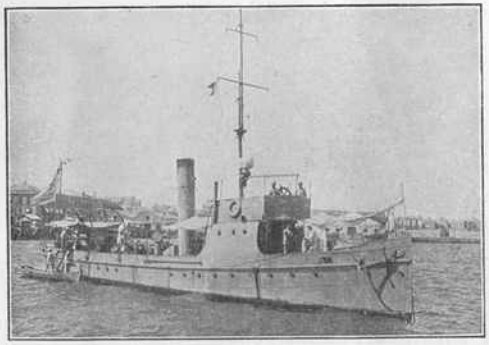
1939, *Official.*

ZAPICÁN (ex-*Atlantico*), (1911). Displacement: 162 tons. Dimensions: 91 × 23¾ × — feet. I.H.P.: 422 = 10 kts.



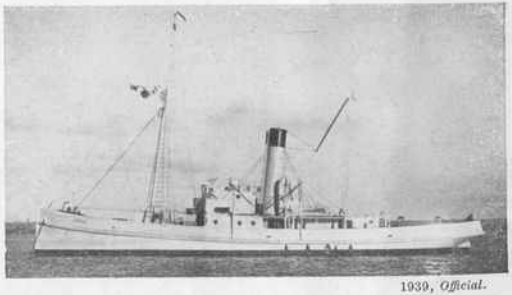
1918 *Photo, A. J. Carbone.*

CORSARIO (1888). Displacement: 130 tons. Guns: 2—37 mm. Speed: 10 kts. (Employed on Survey Service, Rio de la Plata).



1918 *Photo, A. J. Carbone.*

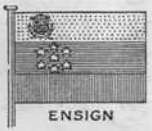
VANGUARDIA (Glasgow, 1908). Displacement: 95 tons. Guns: 2—37 mm. I.H.P.: 200 = 12 kts.

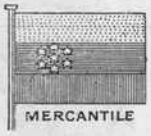


1939, *Official.*

HURACÁN (ex-*Fortuna*), (Boston, 1879). Displacement: 197 tons. Dimensions: 114¾ × 25¾ × — feet. I.H.P.: 384 = 12 kts.

VENEZUELA.


ENSIGN


MERCANTILE

Minister of War and Marine: Colonel don Isaias Medina.

Naval Base: Puerto Cabello. Steel floating dock here 282 × 90 × 22 feet. (2400 tons capacity) built in five sections on self-docking system, and worked by electricity. Also a wooden floating dock, 180 × 60 × 19 feet (1200 tons capacity). Both these docks are Government property.

Mercantile Marine: ("Lloyd's Register," 1939 figures). 54 vessels of 77,322 gross tonnage.

Gunboats

GEN. SOUBLETTE. 1939, *Lieut. L. F. Bouman.*

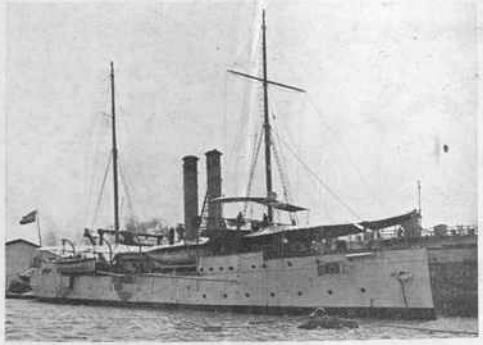
GEN. URDANETA. 1939, *Lieut. L. F. Bouman.*

GENERAL SOUBLETTE (ex-*Milazzo*), **GENERAL URDANETA** (ex-*Dardanelli*). (1925). Both built at Monfalcone for the Royal Italian Navy, and sold to Venezuela in 1938. Displacement: 615 tons (*full load*, 850 tons). Dimensions: 204 × 28½ × 8½ feet. Guns: 2—4 inch, 35 cal., 1—3 inch AA., 2 M.G. H.P.: 1,500 = 15 kts. Oil-fired boilers (converted from coal in 1938). Fitted for minelaying.

Gunboats—*Continued.*

1933 *Photo, Official.*

MIRANDA (Clydebank, 1895; purchased from Spain, 1898). 200 tons. Dimensions: 140 × 17½ × 7½ feet. Guns: 2–6 pdr. 2 M.G. H.P.: 315 = 10 kts. Coal: 36 tons. Endurance: 850 miles at 8 kts. Complement: 55.


1933 *Photo, Official.*

MARISCAL SUCRE (ex-Spanish *Isla de Cuba*, 1886, captured by U.S., 1898, and sold to Venezuela, 1912). 1125 tons. Dimensions: 192 × 30 × 12¾ feet (*mean* draught) 13 feet (*max.* draught). Guns: 2—4 inch, 2—6 pdr., 4—3 pdr., 2—1* pdr. H.P. 2000 = 11 kts., *max.* continuous speed, 8 kts. Coal: 200 tons. Endurance: 885 miles at 9·5 kts. Complement, 100. Built by Armstrongs.

*1—1 pdr. transferable to boat mounting.

Note.—Likely to be scrapped soon.

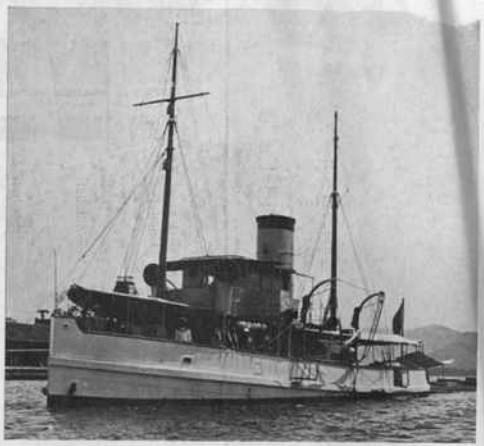
Gunboats—*continued.*

(Classed as *Crucero.*) 1933 *Photo, Official.*

GENERAL SALOM (ex-*Restaurador*, purchased 1900; built as U.S. private yacht *Atlanta*, 1884). 750 tons. Dimensions: 240 × 26 × 13 feet (*max.* draught). Guns: 1—3 inch, 4—6 pdr., 1 machine. H.P. 1500=12 kts., *max.* continuous speed 8 kts. Coal: 200 tons. Endurance: 1080 miles at 8 kts. Complement: 86. (Refitted, 1938).

Armed Tugs.

A new tug is building, dimensions: 60 × 11½ × 4½ feet.



1933 *Photo, Official.*

ARAGUA (ex-tug *Caroni*), purchased 1929. 154 tons. 1 M.G. I.H.P. 525=7 kts. 14 tons oil. Complement: 30.

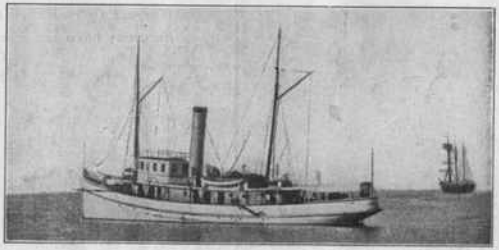


Photo by favour of Ellis Greu & Co., N.Y

JOSÉ FELIX RIBAS (ex-*Zumbador*, built 1894). 300 tons. Dimensions 127 × 23 × 12 feet. Guns: 2—6 pdr. Speed, 8 kts. Coal: 60 tons. Endurance: 850 miles. Complement, 55.

Note.—Tug 21 *de Julio* was wrecked in 1939.

River Gunboats.

2 vessels reported to have been acquired in 1939.

Motor Launches.

CARIBE (ex-*Guardacosta III*), **ARAUCA, TACHIRA.** 30 tons.

Presidential Yacht.

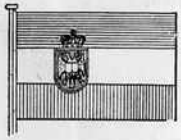
Added, 1940.

LEANDRO (ex-*Dr. Brinkley II*), (U.S.A., 1925). Displacement: 320 tons. Dimensions: 149 (*o.a.*) × 24½ × 7½ feet. Guns: 2—37 mm. 2 Winton Diesel engines. 2 shafts. B.H.P.: 1,000 = 18 kts.

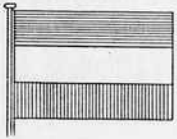
YUGOSLAVIA.

FLAGS.

ROYAL STANDARD



ENSIGN

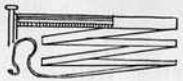


MERCANTILE

MINISTER OF WAR AND MARINE

Red
White
Blue
Yellow

ADM.RAL (WITH WHITE CENTRE) | VICE-ADMIRAL (WITH RED CENTRE) | REAR-ADMIRAL (WITH BLUE CENTRE)



PENDANT

ADMINISTRATION.

Minister of War and Marine: General Milutin Dj. Nedić.

Commander in Chief of Fleet: Vice-Admiral Marjan L. Polić.

Naval and Military Attaché in London: Brigadier-General M. M. Radovitch.

Personnel: 625 officers. 5,700 petty officers and men.

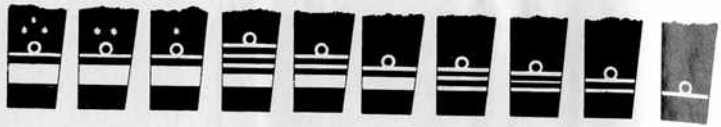
(Reserve): 400 officers. 720 petty officers and men.

Colour of Ships: Light grey.

Mercantile Marine: From "Lloyd's Register," 1939. 190 vessels of 411,384 gross tonnage.

Displacements are "standard."

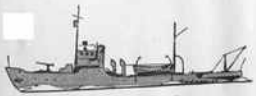
UNIFORMS.



Admiral.	
Vice-Admiral.	
Kontradmiral.	Rear Admiral.
Kapetan bojnog broda	Captain over 3 years.
Kapetan Fregate.	Captain under 3 years.
Kapetan Korvete.	Commander.
Poručnik bojnog broda. 1 Klase.	Lt.-Commdr.
Poručnik bojnog broda 2 Klase.	Lt. over 4 years.
Poručik Fregate.	Lt. under 4 years.
Poručnik Korvete.	Sub-Lt.

For relative ranks:

Engineers have silver grey between the stripes.
Paymasters have red between the stripes.
Constructors have purple between the stripes.
Warrant Officers have brown between the stripes.
Surgeons have an Æsculapius snake on the curl.



MARJAN *class*

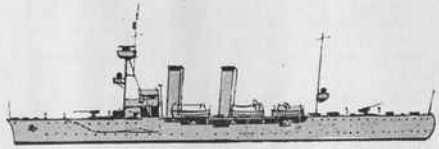
ZMAJ.

SILNI.

GALEB *class*

HVAR

JAKI.



DALMACIJA.

VILA.

DUBROVNIK.

D.2.

T.5-8.

T.1-4.

BEOGRAD *class.*

SMELI. OSVETNIK.

HRABRI. NEBOJSA.

YUGOSLAVIA—Destroyers (*Razarač*).

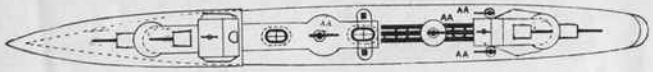
A new Flotilla Leader was laid down at Split in 1939. Engines and boilers to be supplied by Messrs Yarrow.

Displacement: 1,845 tons (*standard*), 2,400 tons (*full load*). Dimensions: 375 (*pp.*), 393¾ (*o.a.*) × 37 × 10½ feet. Guns: (probably) **5**—5·5 inch, **10**—40 mm. AA., **8** M.G. AA. Tubes: **6**—21 inch. Machinery: Parsons geared turbines. 2 shafts. S.H.P.: 50,000 = 37 kts. Boilers: 4 Yarrow, working pressure 400 lb. Oil fuel: 590 tons.

1932 *Photo, Messrs. Yarrow.*

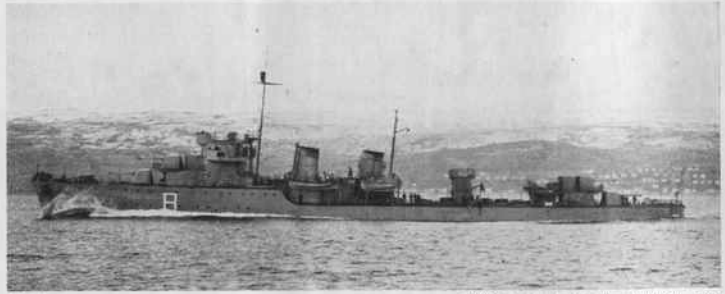
DUBROVNIK (Oct. 11, 1931, Yarrow). Displacement: 1,850 tons (*standard*), 2,400 (*full load*). Complement: 200. Dimensions: 345 (*p.p.*). 371½ (*o.a.*) × 35 × 11¾ feet (*mean* draught). Guns: (Skoda) **4**—5·5 inch, 2–3·4 inch AA., **6**—40 mm. AA. (2 single and 2 twin mounts). 2 M.G. AA. Tubes: **6**—21 inch. Fitted for minelaying. Machinery: Parsons geared Turbines. 3 Yarrow boilers. S.H.P: 42,000 = 37 kts. Radius: 7,000 miles at economical speed.

Note.—Designed to meet particular specifications and has proved a fast and economical steamer. Note the position of the AA. guns by after shelter deck, after control position and removal of searchlight from the bridge to athwart second funnel. S.L. platforms are stayed away from funnel to avoid all vibration. She is the first Yarrow destroyer to have a clipper bow.



DUBROVNIK.

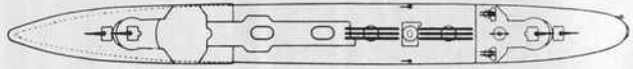
BEOGRAD. 1939, *Wright & Logan.*



BEOGRAD. 1939, *courtesy Messrs. Yarrow & Co., Ltd.*

3 *French* type: ***Beograd*** (Dec. 23, 1937). Built by At. et Ch. de la Loire, St. Nazaire. ***Ljubljana,*** (June 28, 1938), ***Zagreb*** (March 30, 1938). Built at Split. Displacement: 1,210 tons. Dimensions: 313 × 31 × 9⅛ feet. Guns (Skoda): **4**—4·7 inch, **4**—40 mm. AA. (paired). Tubes: **6**—21 inch (tripled), **30** mines carried. Machinery: Parsons geared turbines, S.H.P.: 44,000 = 38 kts. Boilers: 3 Yarrow, working pressure 400 lb.

Note.—*Ljubljana* was wrecked in harbour at Split on Jan. 24, 1940, but is under salvage.



8 Torpedo Boats (*Torpiljarke*) (ex-Austrian).

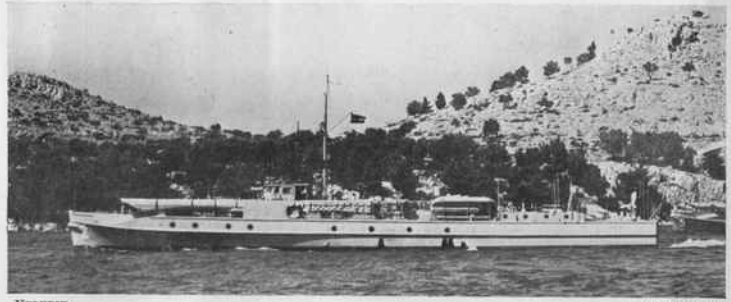
1931 *Photo, Official.*

Ex-Austrian boats: ***T1—T4*** (ex-*76 T—79 T*, Stab. Tecnico, Trieste, 1913-15). Displacement: 262 tons. Fuel: 18 tons coal, 24 tons oil.

1931 *Photo, Official.*

4 Ex-Austrian boats: ***T5—T8*** (ex-*87 F, 93 F, 96 F, 97 F*, Ganz-Danubius Co., Porte Ré, Fiume 1913-15). Displacement: 266 tons. Fuel: 20 tons coal, 34 tons oil
Other details of ***T1—T8.*** Dimensions: 188·3 × 18·7 × 4·9 feet. Guns: 2—66 m/m. and 1 M.G. Torpedo tubes: 4—18 inch (paired). Machinery: Turbine. S.H.P.: 5,000 = 28 kts. (24 reported best speed now). Yarrow boilers.

Motor Torpedo Boats (*Borbeni Čamci*).



VELEBIT. 1939, *Official.*

Orjen, Velebit, Dinara, Triglav, Suvobor, Rudnik Kaimakcalan, Durmitor. (Lürssen, Vegesack, 1936–37). Displacement: 60 tons. Complement: 14. Dimensions: 92 × 14 × 5 feet. Armament: 1—47 mm. AA., 1 M.G. AA., 2—18 inch torpedo tubes. Machinery: 4 Mercedes-Benz petrol motors. H.P.: 3,000 = 34 kts.

Note.—Distinguished by numbers 1 to 8, respectively, painted on bows.

Added 1938, *courtesy Messrs. Thornycroft.*

Uskok, Cetnik. (ex-*TC.* 1 and 2). (John I. Thornycroft & Co., Ltd., May, 1927). Dimensions: 55 × 11 feet. Machinery: 2 Thornycroft motors of 375 H.P. each = 37 kts. *nominal* (40 kts. actually obtained). Auxiliary engine fitted for cruising, equal to 800 miles radius. 2 Lewis guns, 2—18 inch torpedoes. 4 D.C., and smoke floats.

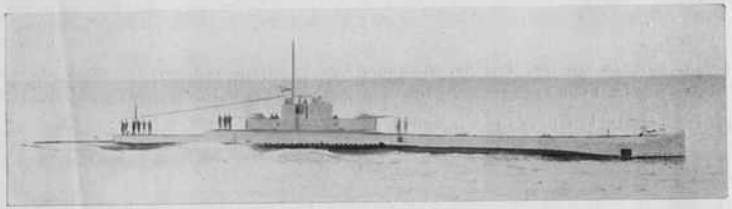
YUGOSLAVIA—Submarines and Training Ship.

4 Submarines (*Podmornice*).

Building.

(Delivery date uncertain.)

2 *Germania* type: Laid down at Kiel, 1939. Displacement: 280/335 tons. Complement: 17. Dimensions: 148$\frac{6}{8}$ × 15$\frac{2}{8}$ × 12$\frac{4}{8}$ feet. Armament: 1—15 mm. AA., 4—21 inch tubes. Machinery: 4-stroke Krupp Diesels. H.P.: 830/— = 13/7 kts.



HRABRI. (Showing lowered gun positions). 1934, *Lieut. D. C. Beatty, R.N.*

Hrabri, Nebojša, (Armstrong, 1927). Displacement: $\frac{972.5}{1164}$ tons. Complement: 45. Dimensions: 236$\frac{1}{2}$ × 24 × 13 feet. Armament: 2—4 inch AA., 6—21 inch torpedo tubes. H.P. 2,400/1,600 = $\frac{15}{10}$ kts. Radius: 5,000 miles at 9 kts.

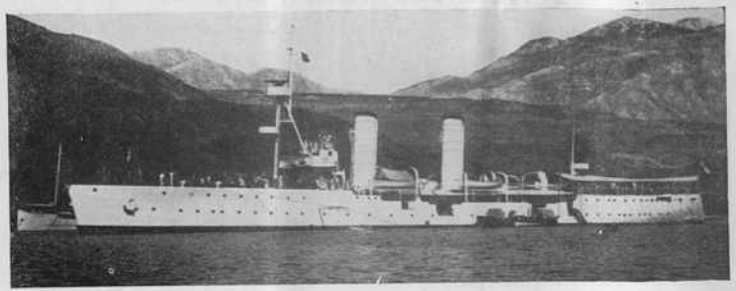
Names mean *Gallant* and *Dreadnought*. Are modified versions of British "L" type, materials having been assembled originally for *L* 67 and *L* 68, never built.

OSVETNIK. 1930 *Photo, M. Bar.*

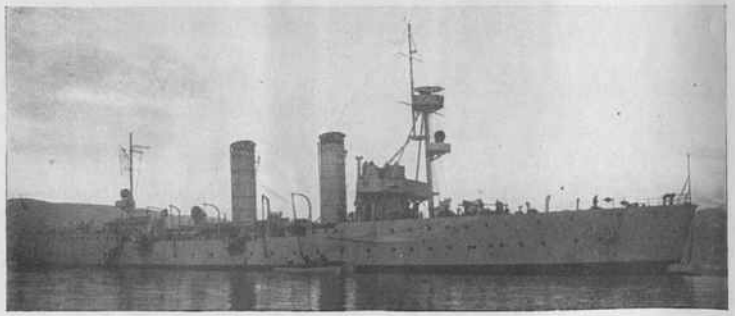
Smeli (Dec. 1st, 1928), ***Osvetnik*** (Feb. 14th, 1929). Laid down at Nantes, 1927, by At. & Ch. de la Loire. Displacement: 600/809 tons. Dimensions: 227 × 18 × 14 feet. Armament: 1—3·9 inch Skoda, 1—1 pdr. AA., 1 M.G., 6—21·7 inch tubes (4 bow, 2 stern). H.P.: $\frac{4450}{1650}$ = $\frac{15}{9}^{\frac{1}{2}}$ kts. Complement: 43.

Names mean *Ardent* and *Vindictive*.

Training Ship (*Skolski brodovi.*)



DALMACIJA. 1931 *Photo, Official.*



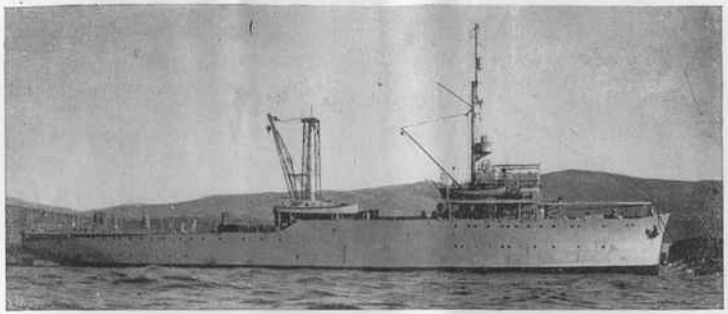
1931 *Photo, Official.*

DALMACIJA (ex-German *Niobe*, Weser Yard, 18th July, 1899). Displacement: 2360 tons. Dimensions: 342$\frac{1}{2}$ × 38$\frac{1}{2}$ × 17$\frac{1}{2}$ feet (*max.* draught). Guns: 6—3·4 inch, 55 cal. (87 mm.) AA. (These are guns of a new and powerful Skoda model, with a maximum range of 18,000 yds.) Torpedo tubes: originally carried 2—19.7 inch, *above* water. Armour (Krupp): 2″ deck (amidships), $\frac{3}{4}$″ deck (ends), 3$\frac{1}{2}$″ glacis to engine room hatches, 3″ C.T. Machinery: 2 sets 4-cylinder triple expansion, 2 screws. Boilers: 5 Schulz-Thornycroft. Designed H.P. 8000=21 kts. Coal, *normal*, 380 tons; *maximum*, 580 tons.

Note.—Purchased from German Government in 1926 and underwent extensive refit and alterations at Kotor. Tripod mast fitted 1931.

Aircraft Tender.

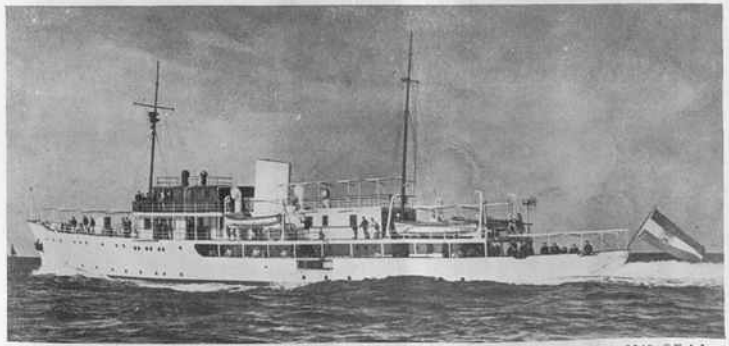
(*Matica za pomocni vazd*).



1931 *Official Photo.*

ZMAJ. Built in 1928 by Deutsche Werft, Hamburg: burnt out and re-built in 1929-30. Displacement: 1,870 tons. Dimensions: 249½ × 42⅔ × 11½ feet. Guns: 1—4 inch AA. Machinery: 2 compressorless M.A.N. Diesels each 1,630 H.P. 3,260 H.P. = 15 kts. 2 screws. 10 aircraft carried. (*Zmaj* means *Kite*).

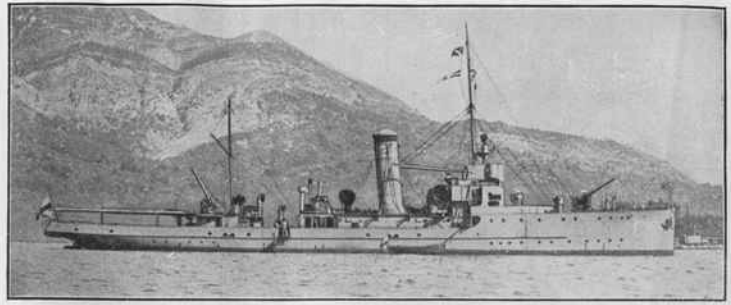
Patrol Vessel.



1940, *Official.*

BELI ORAO (C. R. dell' Adriatico, San Marco, Trieste, June 3, 1939). Displacement: 567 tons *standard*, 660 tons *full load*. Dimensions: 197 (*pp.*), 213½ (*o.a.*) × 26½ × 9½ feet. Armament: Not yet settled, but probably 2-3 inch. Machinery: 2 Sulzer Diesels. B.H.P.: 1,900 = 18 kts.

Mine Layers (*Minonosci*).



SOKOL. 1924 *Photo, by courtesy of the Navy Department.*

6 boats: **GALEB** (ex-*M* 100), **LABUD** (ex-*M* 106), **JASTREB** (ex-*M* 112), **KOBAC** (ex-*M* 121), **ORAO** (ex-*M* 97), **SOKOL** (ex-*M* 144) (1917–18). Displacement: 330 tons. *standard*, 525 tons *full load*. Dimensions: 182 (*w.l.*), 192 (*o.a*) × 23½ × 7 feet. Guns: 2—3·9 inch AA., 4—3 pdrs. Complement: 71. I.H.P.: 1,800 = 15 kts. Oil: 160 tons. Names mean *Seagull*, *Swan*, *Hawk*, *Sparrowhawk*, *Eagle* and *Falcon* respectively.

Note.—Identification letters painted on bows: **AO**, *Orao*; **JS**, *Jastreb*; **LB**, *Labud*; **KC**, *Kobac*; **CK**, *Sokol*; **GL**, *Galeb*.

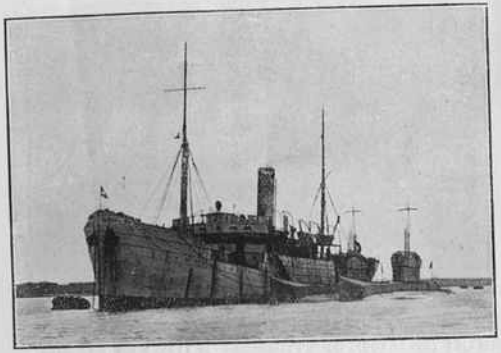
Mine Sweeper (*Drager*).

D 2. 1931 *Official Photo.*

D 2 (ex-Austrian T.B., *No.* 36., 1888). Displacement: 78 tons. Dimensions: 128 × 14¾ × 3¼ feet. Guns: 2—37 m/m. Triple expansion engines. H.P.: 700 = 17 kts. Complement: 16. This vessel has been renovated and is still quite serviceable.

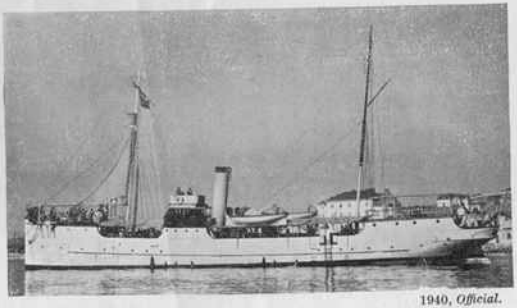
YUGOSLAVIA

Submarine Depot Ships (*Matica za Podmornice*).



HVAR. 1928 *Photo.*

HVAR (ex-*Solun*, ex-*Umtali*). Sir Jas. Laing & Sons, Ltd., Sunderland, 1896 (Rebuilt 1927). 3,600 tons. Dimensions: 318½ × 39 × 13 feet. Machinery: Triple expansion. H.P.: 1,100 = 12 kts.



1940, *Official.*

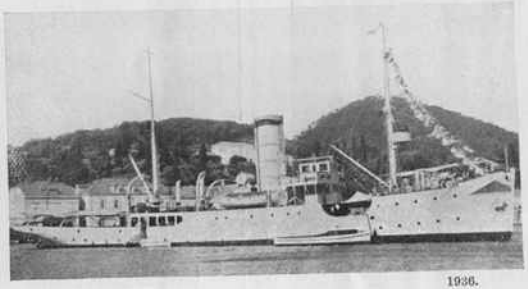
SITNICA (ex-*Najade*, 1891). 370 tons. Dimensions: 157½ × 23 × 6½ feet. Machinery: Triple expansion. H.P.: 500 = 9 kts. Guns: 2—3 pdr. Name means *Dew.*

Mining Tenders (*Tenderi minopolagaci*)

MARJAN 1939 *Official.*

5 boats: **MALINSKA, MARJAN, MELJINE, MLJET, MOSOR** (1931, Yarrow's Adriatic Yard, Kralyevica). Displacement: 130 tons. Dimensions: 174 × 26½ × 13 feet. Machinery: Triple expansion. H.P.: 280 = 9 kts. Guns: 1—11 pdr. Identification letters painted on bows: **MA,** *Malinska;* **ME,** *Meljine;* **MN,** *Marjan;* **MT,** *Mljet;* **MO,** *Mosor.*

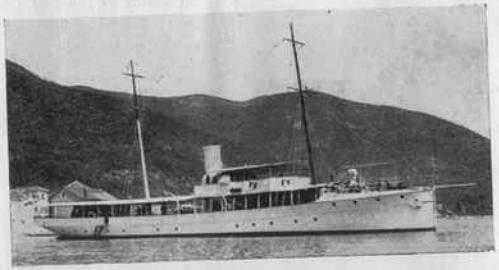
Salvage Vessel (*Brod za Spasavanje*).



1936.

SPASILAC (1929). 740 tons. Dimensions: 174 × 26½ × 13 feet. Machinery: Triple expansion. H.P.: 2,000 = 15 kts. Name means *Salvor.*

Yacht (*Jahta*).



1931 *Photo, Official.*

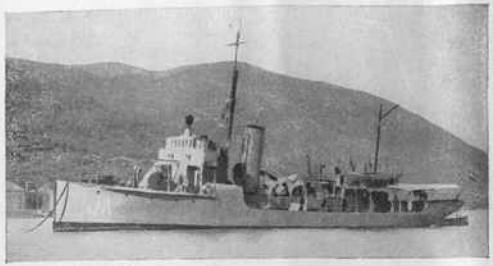
VILA (ex-*Dalmata*) (1896). 230 tons. H.P. 325=12 kts. Name means *Nymph.*

Training Ship (*Skolski Brodovi*).

1933 *Photo, Official.*

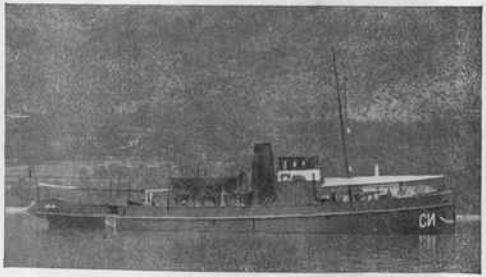
JADRAN (1932). Displacement: 720 tons. Dimensions: 190½ × 29 × 13¾ feet. One Linke-Hofmann Diesel. H.P.: 375 = 8 kts. Sail area, 8,600 sq. feet. Accommodation for 150 cadets. Name means *Adriatic.*

Tugs (*Remorkeri*).



JAKI 1931 *Photo, Official.*

JAKI (1915). Displacement: 370 tons. H.P. 1,200=15 kts.



1931 *Official Photo.*

SILNI (1914). Displacement: 200 tons. Guns: 2—47 mm. H.P.: 670 = 10 kts.

SNAZNI (1917). 100 tons. H.P. 300=10 kts.

USTRAJNI (1917). 160 tons. H.P. 250=9 kts.

MARLJIVI (1898). 130 tons. H.P. 300=12 kts.

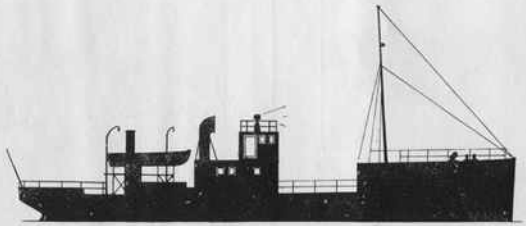
Note.—Respective meanings of above names are *Forceful, Powerful, Strong, Durable, Industrious.*

Oiler.

1940, *Official.*

PERUN (March 8, 1939). Built by Cockerill, Antwerp. Displacement: 4,500 tons (3,006 tons *gross*). Complement: 100. Dimensions: 291 (*pp.*), 311½ (*o.a.*) × 45½ × 20 feet. Guns: 4—40 mm. AA., 2—15 mm. AA. Machinery: Burmeister & Wain 2-stroke Diesels. B.H.P.: 1,250 = 10 kts. *Deadweight* capacity: 3,000 tons.

Water Carrier (*Vodonosac*).



LOVĆEN (1932). Displacement: 561 tons. Complement: 20. Dimensions: 111 × 25½ × 14 feet (*max.*). Machinery: Diesel. B.H.P.: 300 = 11 kts. *light;* 8·5 kts. *loaded.*

River Patrol Vessels.

1939 *Official.*

DRAGOR (1928). Displacement: 250 tons. Dimensions: 164 × 26½ × 3¾ feet. H.P.: 480 = 10 kts. Serves as Royal Yacht on Danube.

CER (1909). 256 tons. Dimensions: 170½ × 23 × 3 feet. 2 M.G. H.P.: 400 = 15 kts.

SISAK (ex-*Triglav*), (1915). 90 tons. Dimensions: 118 × 19½ × 6 feet. 2 M.G. H.P.: 350 = 11 kts.

SABAC (ex-*Avala*), (1914). 90 tons. Dimensions: 101¾ × 23 × 4½ feet. H.P.: 360 = 8 kts.

(Latter three vessels are converted tugs.)

Note.—Two 36-ton motor vedette boats, speed 9 kts., are maintained on Lake Ohrid. Names are *Graničar* and *Stražar*, meaning Frontier Guard and Sentinel, respectively. They were built in 1929.

YUGOSLAVIA—River Monitors.

River Flotilla.—(*Rečna Flotila*)

1933 *Photo, Official.*

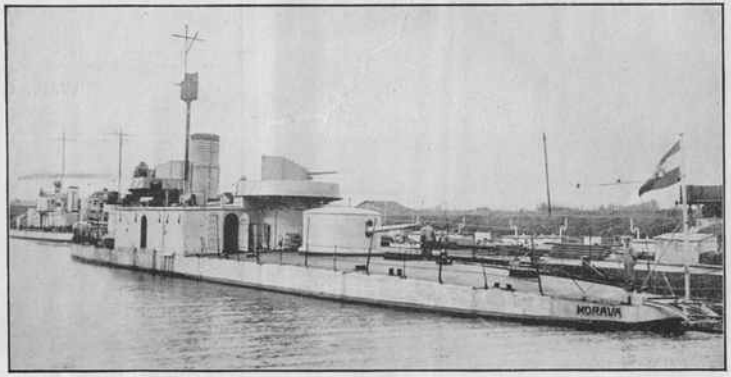
VARDAR (ex-Austrian *Bosna*, 1915). 530 tons. Dimensions: 200 × 34½ × 4½ feet. Guns: **2**—4·7 inch, 45 cal., **2**—4·7 inch, 10 cal. howitzers, **2**—66 mm. AA., **7** M.G. Armour: 1½ inch belt and bulkheads, 1 inch deck, 2 inch C.T., 2 inch turrets and cupolas. H.P. 1,600 = 13 kts. Oil: 75 tons. Complement, 100. Sister to *Basarabia*, now in Roumanian Navy.

DRAVA. 1933 *Photo, by courtesy of the Navy Dept.*

DRAVA (ex-Austrian *Enns*, 1913). 450 tons. Dimensions: 190½ × 34½ × 4½ feet. Guns: **2**—4·7 inch + **3**—4·7 inch howitzers, **2**—66 m/m., **7** M.G. Armour: 1½″ Belt and Bulkheads, 1″ Deck, 2″ C.T. and Turrets. Designed H.P. 1500 = 13 kts. Boilers: Yarrow. Fuel: Oil only, 70 tons. Complement, 86. Built under Austro-Hungarian 1912 Naval Programme; ceded to Yugoslavia 1920. Sister ship *Bucovina*, now in Roumanian Navy.

1933 *Photo, Official.*

SAVA (ex-Austrian *Bodrog*, Neupest, March, 1904). 380 tons.
Dimensions: 183¾ × 31½ × 4 feet. Designed H.P. 1,200 = 9 kts.
Boilers: Yarrow.
Armament: **2**—4·7 inch, 35 cal., **1**—4·7 inch howitzer, **1**—66 mm. AA., **2** M.G., **1** or **3** machine.
Armour: 1½″ Belt and Bulkheads, 1″ Deck, 3″—1½″ Turrets and Conning Tower.
Complement, 79. Coal: 62 tons.



MORAVA. (Gun on superstructure since removed.) 1924 *Photo by courtesy of the Navy Dept.*
Note overhanging rails at stern, for launching and hauling in boats.

MORAVA (ex-Austrian *Körös*, Budapest, 1892). 390 tons. Dimensions: 177⅓ × 29½ × 4 feet. Designed H.P. 1200 = 9 kts. Boilers: Yarrow. Guns: **2**—4.7 inch (35 cal.), **1**—66 m/m. **2** M.G. Armour: 2″ Belt, ¾″ Deck, 3″ Turret, 2″ C.T. Complement, 79-80. Coal: 54 tons.

ADDENDA

BRITISH.

ILLUSTRIOUS (p. 35.) 1940.

Pages 12, 13: Historical details of names assigned to ex-American destroyers.

ANNAPOLIS (1st), 1940
BATH (1st), 1940
BELMONT (3rd), 1795.
BEVERLEY (1st), 1940
BRADFORD (3rd), 1658
BRIGHTON (4th), 1795
BROADWATER (1st), 1940
BROADWAY (1st), 1940
BURNHAM (2nd), 1918
BURWELL (1st), 1940
BUXTON (1st), 1940
CALDWELL (1st), 1940
CAMERON (1st), 1940
CAMPBELTOWN (1st), 1940
CASTLETON (1st), 1940
CHARLESTOWN (2nd), 1781
CHELSEA (1st), 1940
CHESTERFIELD (4th), 1745
CHURCHILL (1st), 1940
CLARE (1st), 1940
COLUMBIA (4th), 1813
GEORGETOWN (1st), 1940
HAMILTON (1st), 1940
LANCASTER (6th), 1694.
LEAMINGTON (2nd), 1918.
LEEDS (2nd), 1918
LEWES (2nd), 1918
LINCOLN (2nd), 1695
LUDLOW (3rd), 1698
MANSFIELD (3rd), 1914
MONTGOMERY (1st), 1940
NEWARK (4th), 1695
NEWMARKET (2nd), 1916
NEWPORT (4th), 1694
NIAGARA (2nd), 1809
RAMSEY (2nd), 1918
READING (1st), 1940
RICHMOND (6th), 1660
RIPLEY (1st), 1940
ROCKINGHAM (1st), 1940
ROXBOROUGH (2nd), 1904
ST. ALBANS (6th), 1867
ST. CLAIR (2nd), 1918
ST. CROIX (1st), 1940
ST. FRANCIS (1st), 1940
ST. MARY'S (6th), 1242
SALISBURY (7th), 1698
SHERWOOD (1st), 1940
STANLEY (1st), 1940
WELLS (2nd), 1775

Page 23. Battleships **JELLICOE** and **BEATTY** have been renamed **ANSON** and **HOWE**, respectively.

ROYAL AUSTRALIAN NAVY.

Page 102. It is proposed to build 5 more destroyers of the "Tribal" type.

ROYAL CANADIAN NAVY.

Page 108. New Construction undertaken in Canada up to December, 1940, included 60 Corvettes and 38 Minesweepers (ten of the latter being of the motor type) for the R.C.N. In addition 10 Corvettes and 12 Minesweepers were put in hand for the Royal Navy.

Armed Merchant Cruisers commissioned: *Add* **PRINCE DAVID, PRINCE HENRY.**

Yachts acquired: *Add* **BEAVER, BISON, CARIBOU, ELK, HUSKY, LYNX, MOOSE, OTTER, RACOON, REINDEER, RENARD, WOLF.** Also **SANS PEUR** (not so far renamed).

Page 108. Minesweepers **MINAS** and **WASAGA** both launched on Jan. 23 1941.

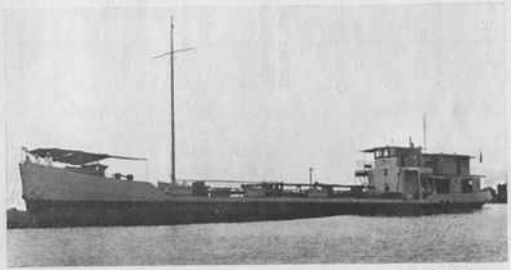
ARGENTINA.

Page 120. **PRESIDENTE SARMIENTO** is being fitted out as the Presidential Yacht.

BELGIUM.

Page 122. It has been reported that **ARTEVELDE** was blown up on the slip before the Germans entered Antwerp.

BRAZIL.



POTENGI. (p. 129.) 1940, *Official.*

Page 126. Destroyers **ACRE, AJURICABA, APA** and **ARAGUAYA** all laid down Dec. 28, 1940. Destroyer **MARIZ E BARROS** launched on same date.

CHINA.

Page 138. **YUNG CHI** is reported to have been renamed **HAI CHING** by Wang Ching-wei Government.

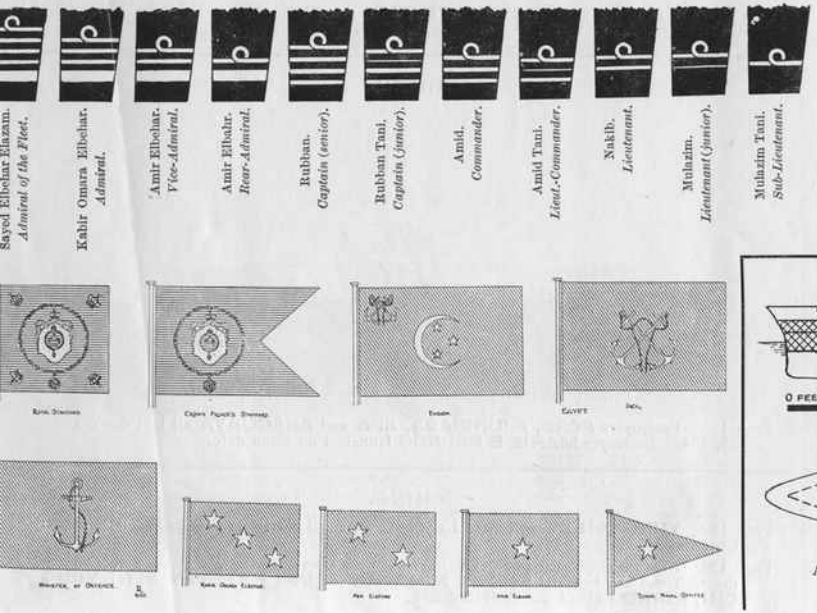
Page 138. Nine warships seized by Japan have been taken over by the Wang Ching-wei Government. These are believed to include **NING HAI, PING HAI, YAT SEN, YUNG CHI, KIANG CHEN** and **MING SEN.**

ADDENDA—*continued*

ECUADOR.

Page 153. Ex-gunboat **ABDON CALDERON** (ex-*Cotopaxi*) is still in service, being employed on coastguard duties as well as serving as a lighthouse tender. A photograph of this vessel appeared in "Fighting Ships" for 1921, p. 565. She was built on the Clyde of iron in 1884. Displacement: 300 tons. Dimensions: 135 (*pp.*) × 21 × 9 feet. 2 small guns are carried. I.H.P.: 175 = 8 kts. (present best speed).

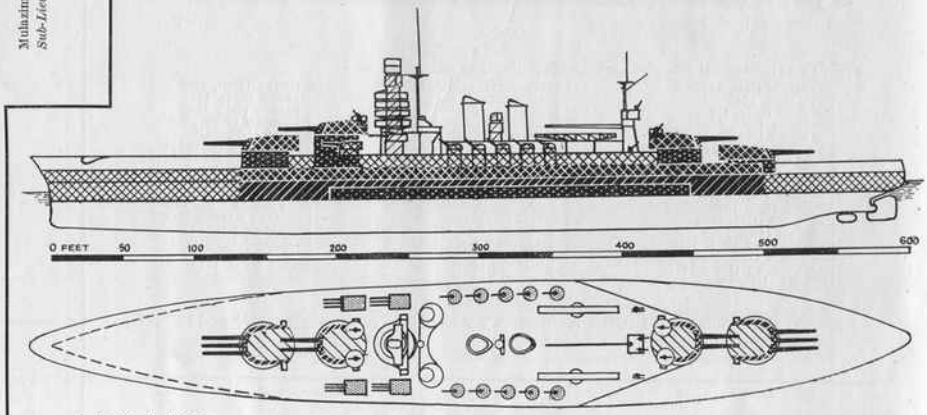
EGYPT.



FINLAND.

Page 161. New minelayers reported to be named **KLERCKER** and **VAKAVA.**

ITALIAN.



A. Doria, C. Duilio.

ADDENDA—*continued*

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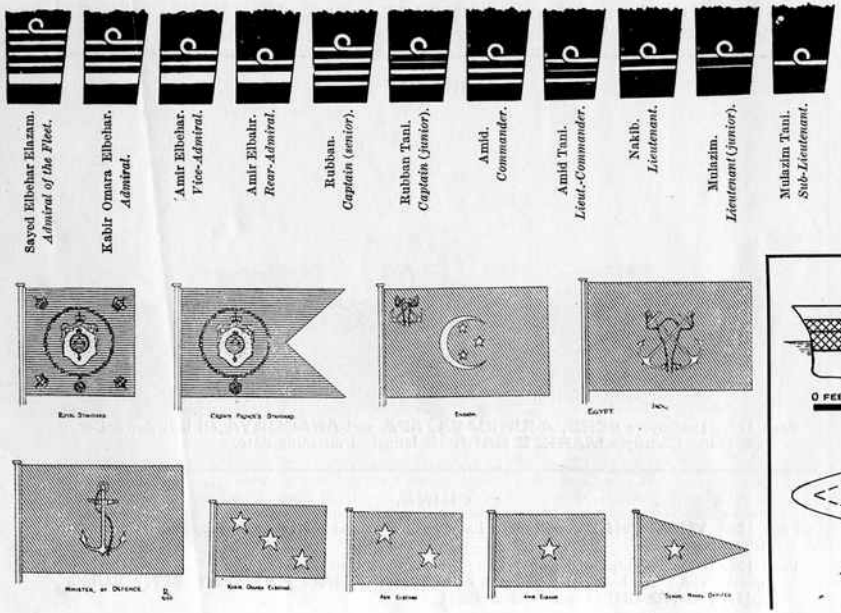

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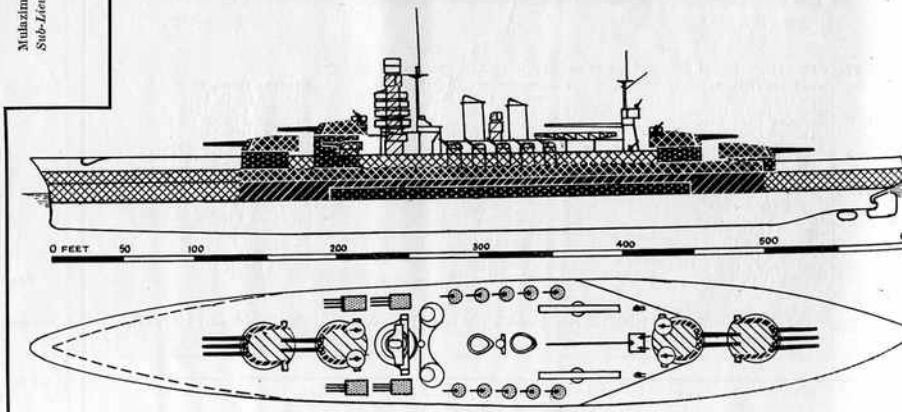


A. Doria, C. Duilio.

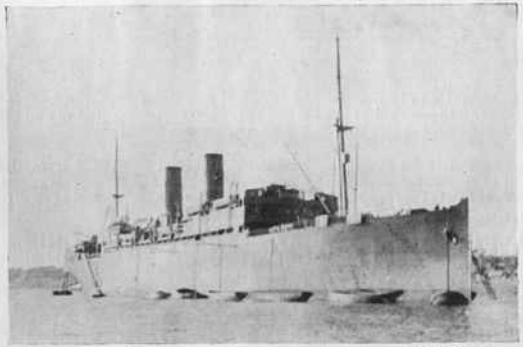
ITALIAN.—*continued*

LITTORIO 1940, *Associated Press.*

JAPANESE.

Page 338. Gunboat **UJI,** launched by Hudinagata Co., Sept. 26, 1940. May be sister ship to **HUSIMI.**

POLAND.



GDYNIA. (p. 377). 1940, *Official.*

A new submarine was launched from a British shipyard in January, 1941, and named **SOKOL** (Falcon).

ROUMANIA.

Page 387. Sister ship to **AMIRAL MURGESCU** has been named **CETETEA ALBA.**

SWEDEN.

T 13. 1940, *courtesy "Sveriges Flotta."*

ADDENDA—*continued*

THAI (Siam).

Pages 439, 440. **AYUTHIA, DHONBURI** and 3 torpedo boats are reported to have been destroyed in action with a French squadron.

U.S.A.

Page 450. Active personnel is to be increased to an extent enabling complements of all combatant ships to be raised to 115 per cent of the normal figures. This is expected to add about 42,000 to the total strength of the personnel.

Page 459. Every effort is to be made to commission **NORTH CAROLINA** during July, 1941, instead of in November as originally proposed. Similar acceleration is hoped for in the case of the **WASHINGTON.** Funnels of these ships will *not* be set abreast.

Names of 7 Battleships numbers 65–71:

ILLINOIS, KENTUCKY, MONTANA, OHIO, MAINE, NEW HAMPSHIRE, LOUISIANA.

Page 470. Names of 7 Aircraft Carriers of Essex Class, CV 13–19:

FRANKLYN, HANCOCK, RANDOLPH, CABOT, BUNKER HILL, ORISKANY, TICONDEROGA.

Page 471. **HORNET** launched on Dec. 20, 1940, to clear slip for **ESSEX.**

Page 480. Six additional Cruisers were ordered in December, 1940, from the Cramp Shipbuilding Co., Camden, N.J. This gives a total of 54 Cruisers building or on order. Contract price for the six, $113,822,280.

Contracts for 17 light cruisers have been reassigned in certain cases, so that 4 of them will now be built by the New York Shipbuilding Corporation, and 7 by the Federal Shipbuilding & Dry Dock Co.

Page 483. Contracts for 40 additional destroyers have been placed as follows:

4, Bethlehem Steel Co., Quincy.
5, Bethlehem Steel Co., San Francisco.
4, Bethlehem Steel Co., San Pedro.
6, Federal S.B. & D.D. Co.
5, Seattle-Tacoma S.B. Co.
6, Bath Iron Works.
4, Boston Navy Yard.
2, Philadelphia Navy Yard.
2, Norfolk Navy Yard.
2, Charleston Navy Yard.

Page 484. Launch date of **EDISON** and **ERICSSON** is Nov. 23, 1940.

Page 490. **PT 10** was completed October 1940, **PT 11** and **12** during November 1940. Dimensions of these and of **PT 9** and **PT 13—20** are reported as 70 × 20 × 4 feet. Machinery of **PT 9,** 3 Rolls-Royce-Merlin engines with a combined B.H.P. of 3,300; and of others, 3 Packard engines, combined B.H.P.: 4,500. Armament of all is 4—18 inch torpedo tubes and 4 M.G.

U.S.A.—*continued*

Dates of Launches: **GAR,** Nov. 7, 1940.
GRAMPUS, Dec. 23, 1940.
GRENADIER, Nov. 29, 1940.

Dates of Laying down: **DRUM,** Sept. 11, 1940.
GATO, Oct. 5, 1940.
GREENLING, Nov. 12, 1940.
SILVERSIDES, Nov. 4, 1940.

Page 493. Contracts for an unstated number of additional submarine chasers have been divided between: Defoe Boat & Motor Works, Bay City, Michigan; Consolidated Shipbuilding Corporation, Morris Heights, N.Y.; Sullivan Dry Dock & Repair Corporation, Brooklyn; George Lawley & Son Corporation, Neponset, Mass.; Dravo Corporation, Pittsburgh; Leathem Smith Coal & Shipbuilding Co., Sturgeon Bay, Wis.

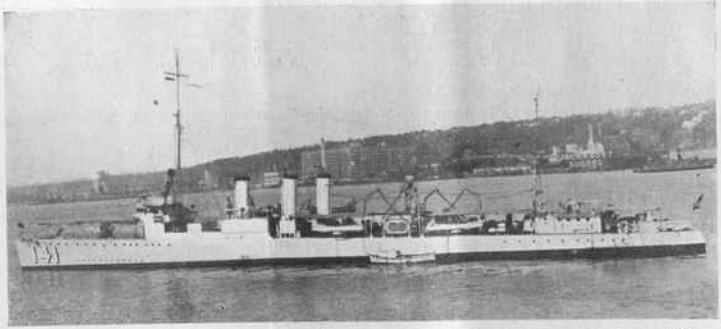
Page 494. **EAGLE 58, SC 103** and **SC 192** have all been removed from the effective list.

Page 496. Yacht **SAMONA II** has been acquired and renamed **AMETHYST.**
Yacht **VARA** has been given the number **PC 509.**

Of the 10 additional seaplane tenders authorised, 6 will be built by Lake Washington Shipyards, Seattle, and the other 4 by Associated Shipbuilders, Seattle.

WASP. (p. 470). 1940, *Official.*

U. S. A.



HAMILTON, with 1st funnel removed. (p. 488). 1940.

PT 3. (p. 490). 1940.

PT 9. (p. 490). 1940, *Official.*

P.C. 451. (p. 493). 1940, *courtesy Builders.*

DIXIE. (p. 498). 1940, *Theo. N. Silberstein.*

ADDENDA—*continued*

U.S.A.—*continued*

PLUNKETT. (p. 484).

Page 496. Additional yachts acquired include the following:

BUCCANEER. Renamed **SAPPHIRE** and rated as a Patrol Vessel.

HI-ESMARO. Length 267 feet. Diesel engines. Renamed **NIAGARA** and rated as a Gunboat.

NOPARO (ex-*Viking*) (1929). 1,300 tons. Length: 272 feet.

PEGASUS (190 tons) and **SYBARITA.**

LOTOSLAND. Renamed **SIREN** and rated as a Patrol Vessel.

EVELYN R. II.

Following yachts are already recorded:

ARLIS, now **PC 454; ELDA,** now **PC 460; ONWEGO,** now **PC 456.**

HAIDA. Now renamed **ARGUS** and rated as a Patrol Vessel.

ORION. Now renamed **VIXEN** and rated as a Gunboat.

SAVITAR. Now renamed **EMERALD** and rated as a Patrol Vessel.

Page 497. Four more netlayers are to be built by Ingall's Shipbuilding Co., Pascagoula, Miss.

U.S.A.—*continued*

Page 498. **FULTON** launched Dec. 27, 1940.

Contracts have been assigned as follows:
2 submarine tenders and 5 submarine rescue vessels, Moore Dry Dock Co., Oakland, Calif.
3 destroyer tenders and 3 submarine tenders, Sun Shipbuilding Co., Chester, Pa.

Page 500. **CHALLENGE** renamed **CASTO.**

Two repair ships are to be built by the Los Angeles Shipbuilding & Dry Dock Co.

Page 502. Following ships acquired for service as Transports:

HEYWOOD (ex-*City of Baltimore*, ex-*Steadfast*) (1919).
GEORGE F. ELLIOTT (ex-*City of Los Angeles*, ex-*City of Havre*) (1918).
WILLIAM P. BIDDLE (ex-*City of San Francisco*, ex-*City of Hamburg*, ex-*Eclipse*) (1919).
NEVILLE (ex-*City of Norfolk*, ex-*Independence*) (1918).
FULLER (ex-*City of Newport News*, ex-*Archer*) (1919).
All above 5 are of 8,424 tons *gross*.
HARRY LEE (ex-*Exochorda*) (1931). 9,359 tons *gross*.

Page 503. Following have been acquired for service as Minesweepers:

BLUE JAY (ex-*Charles S. Ashley*).
BUNTING (ex-*Vagabond*).
CANARY (ex-*John G. Murley*).
CHATTERER (ex-*Sea Breeze*).
COCKATOO (ex-*Vashon*).
CONDOR (ex-*New Example*).
CROSSBILL (ex-*North Star*).
CROW (ex-*Jadran*).
EGRET (ex-*Julia Eleanor*).
FLAMINGO (ex-*Harriet N. Eldridge*).
GOLD CREST (ex-*Stella Polaris*).
GOSHAWK (ex-*Penobscot*).
GROSBEAK (ex-*Del Rio*).
GROUSE (ex-*New Bol*).
HEATH HEN (ex-*Noreen*).
HORNBILL (ex-*J. A. Martinolich*).
HUMMING BIRD (ex-*Whaling City*).
KESTREL (ex-*Chanco*).
KILLDEER (ex-*Vindicator*).
LONGSPUR (ex-*New Ambassador*).
MAGPIE (ex-*City of San Pedro*).
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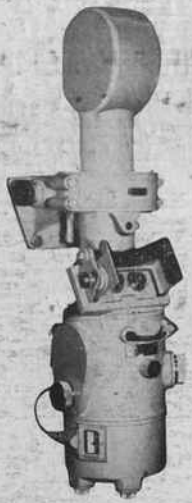

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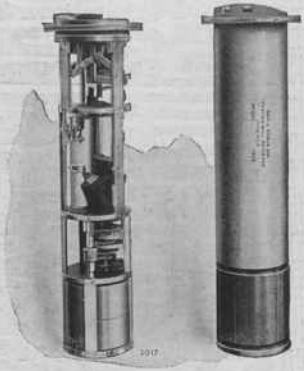

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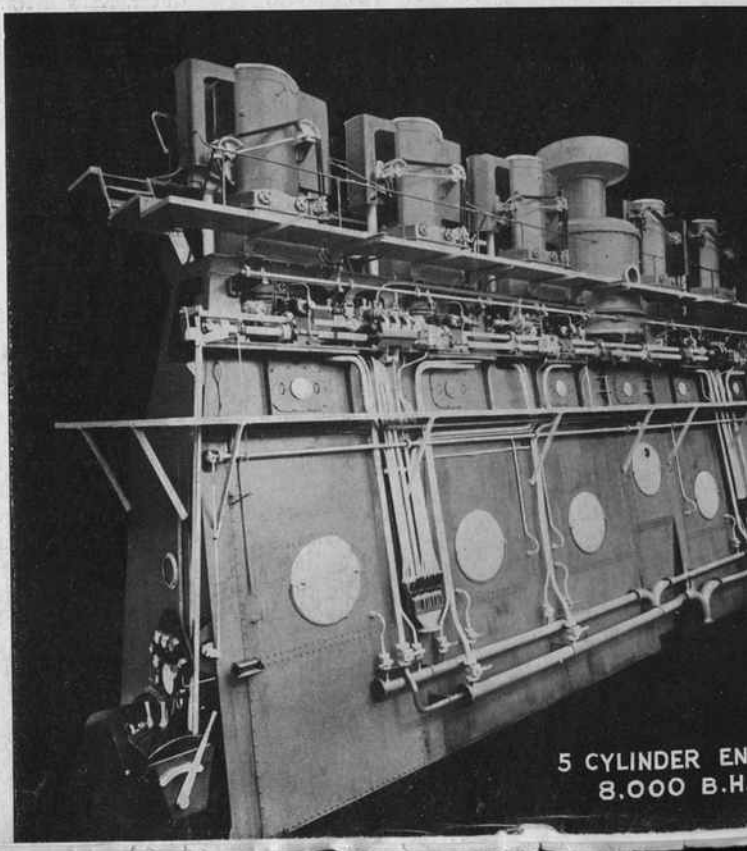

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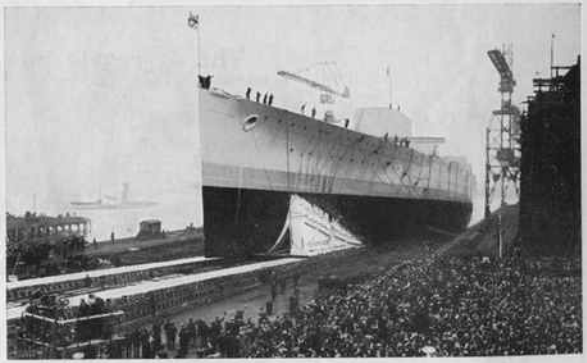

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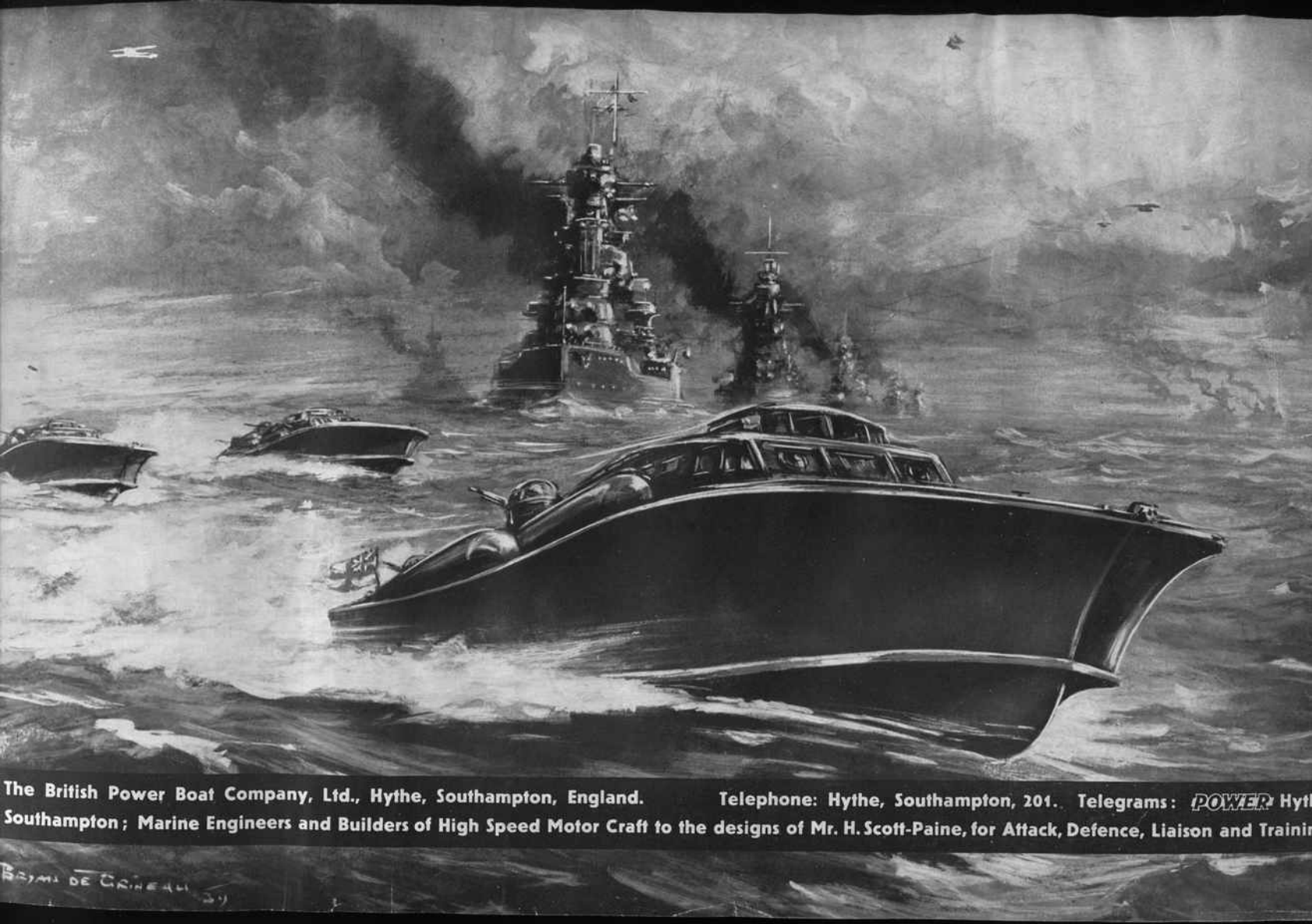
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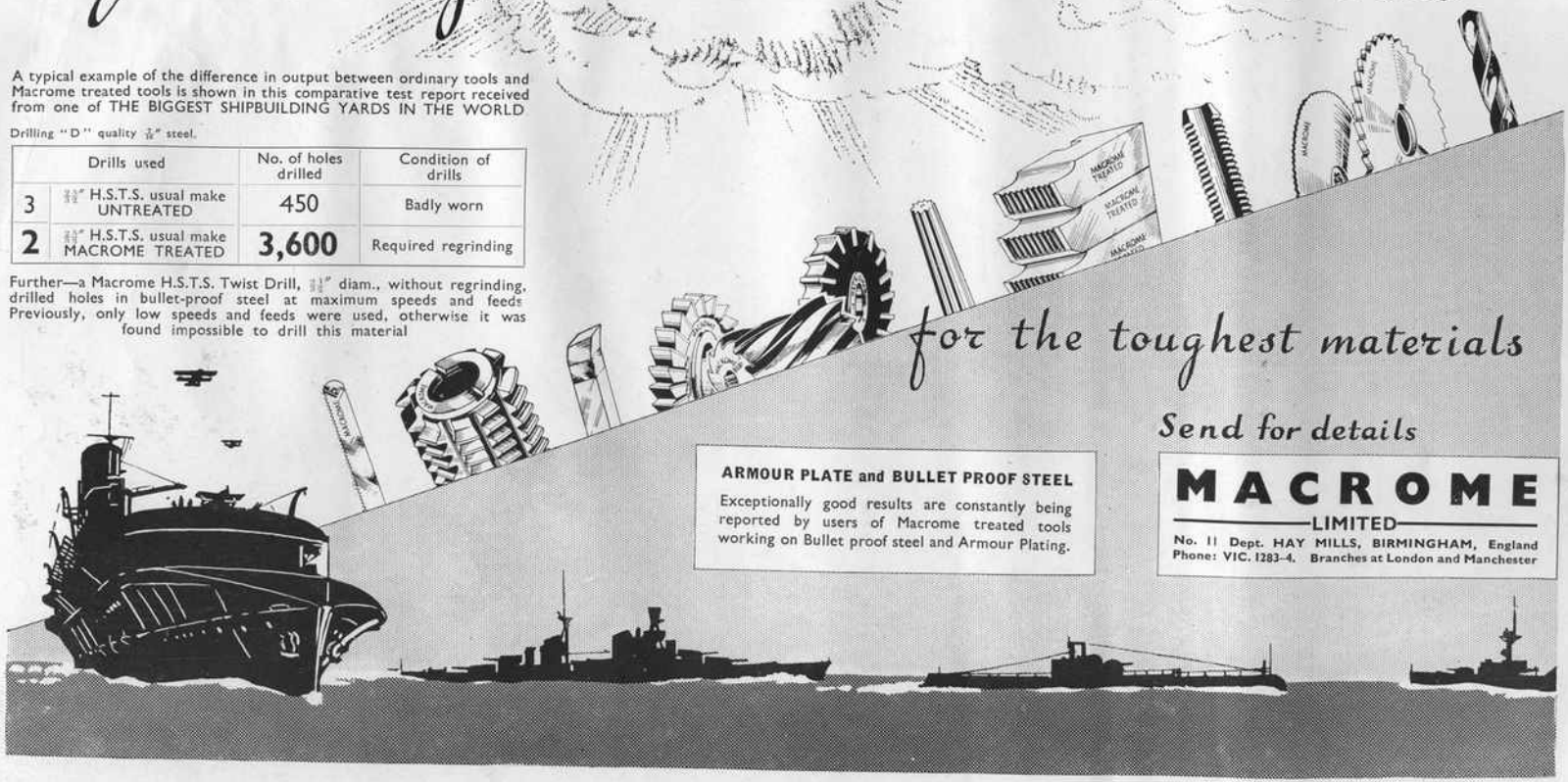

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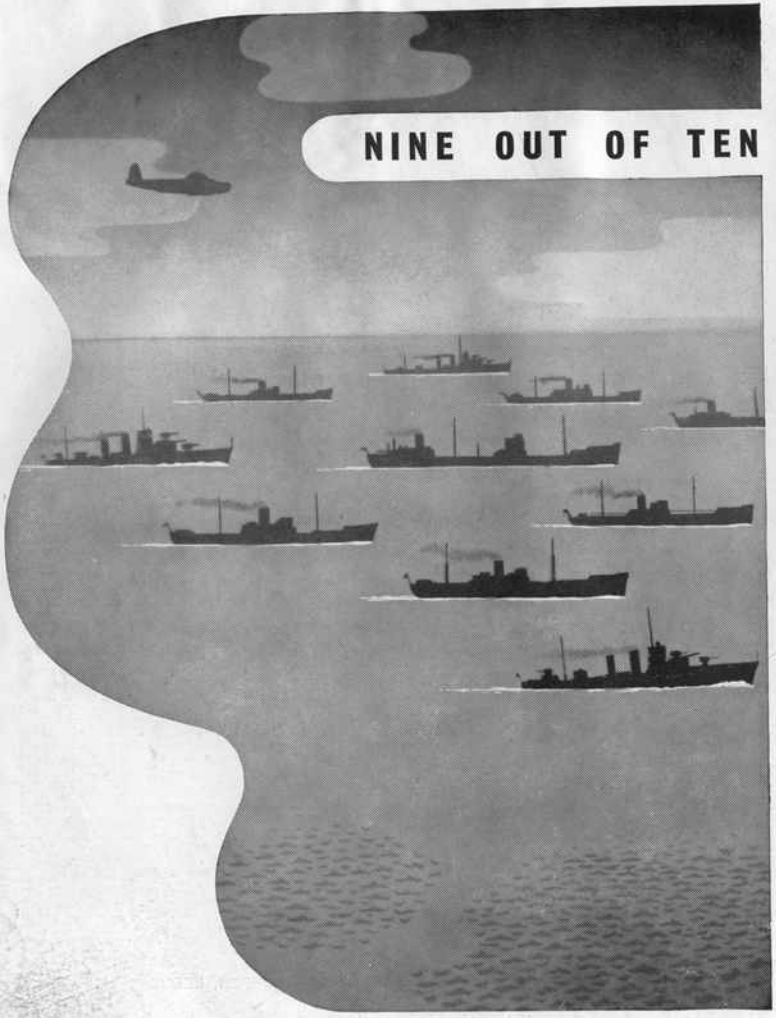

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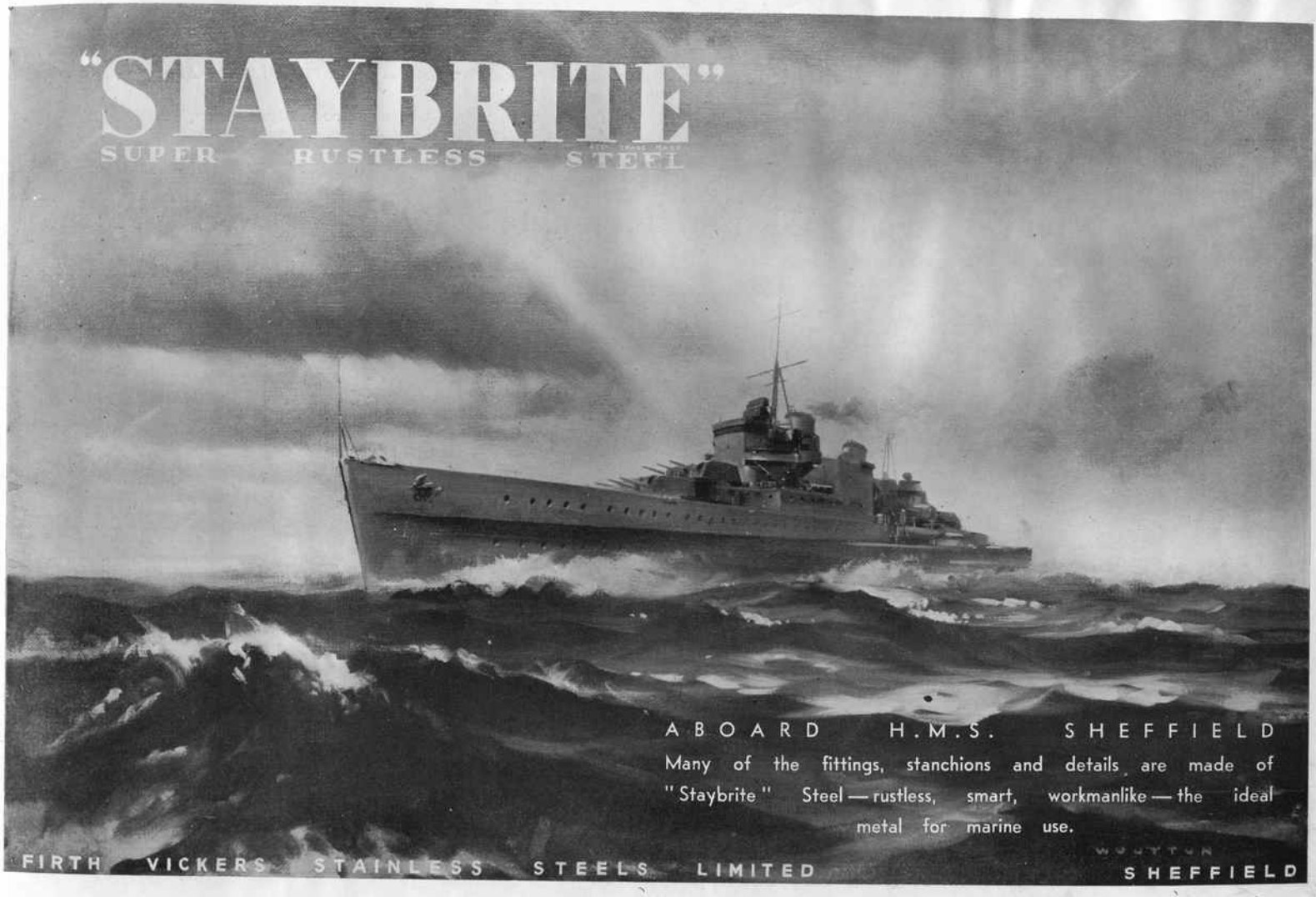
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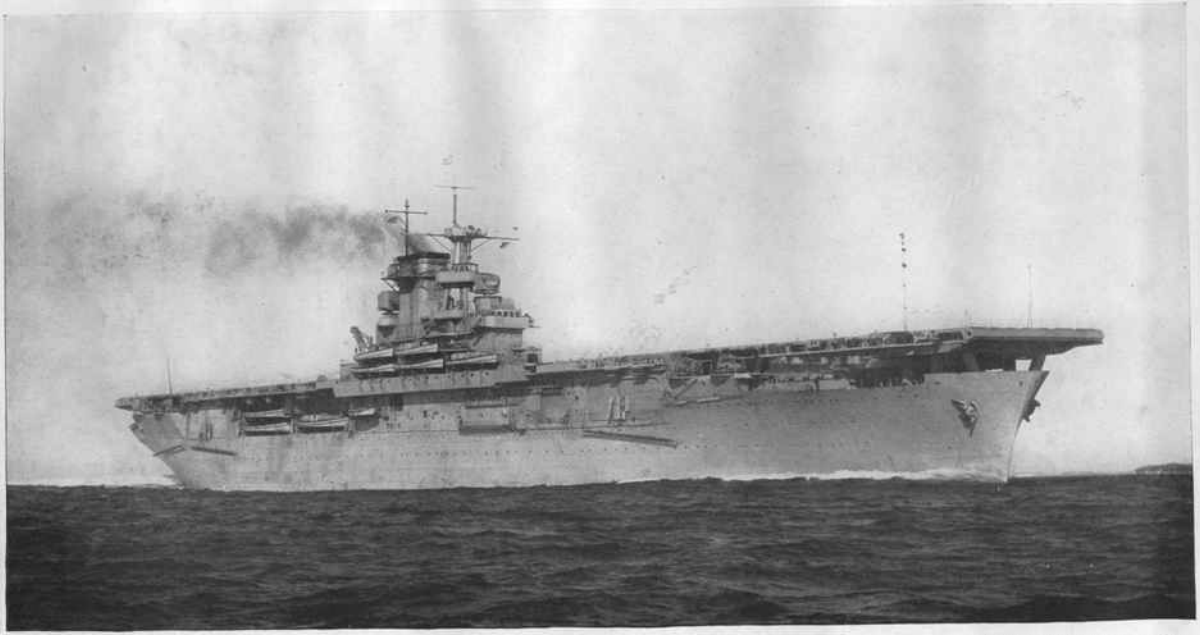

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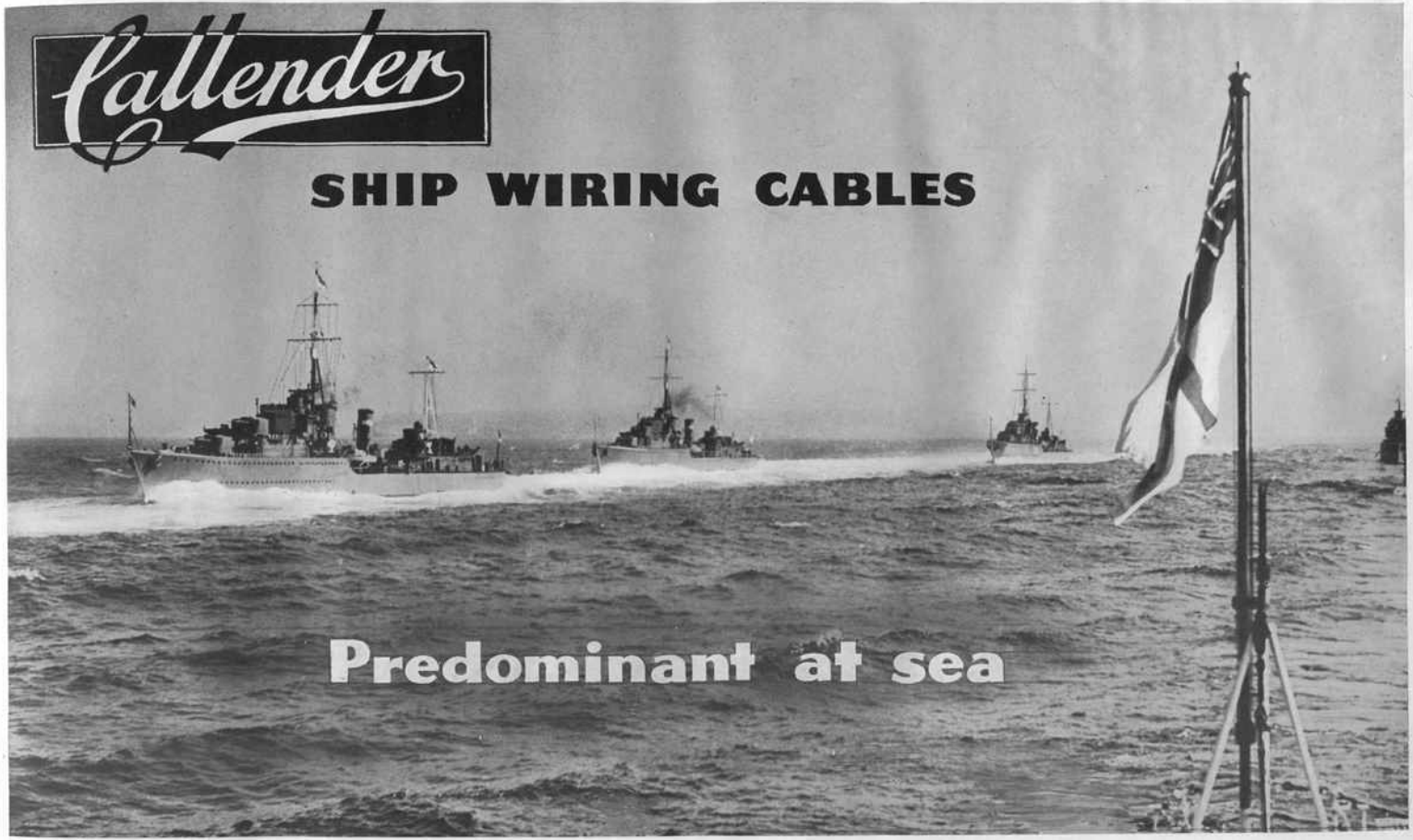

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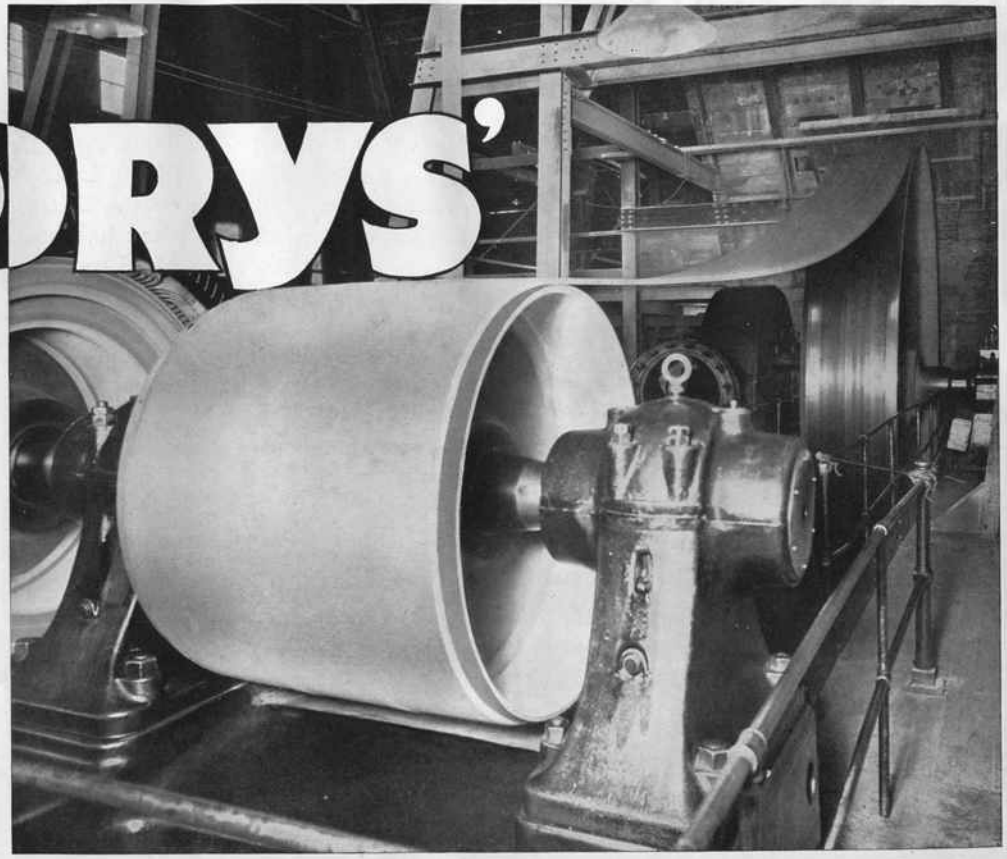

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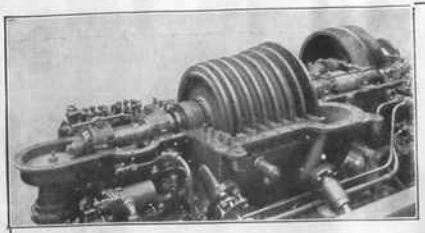

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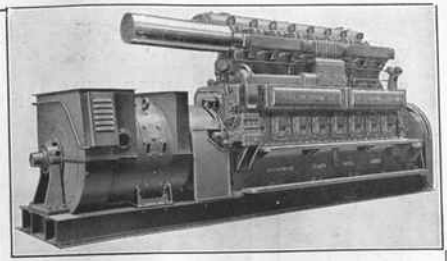

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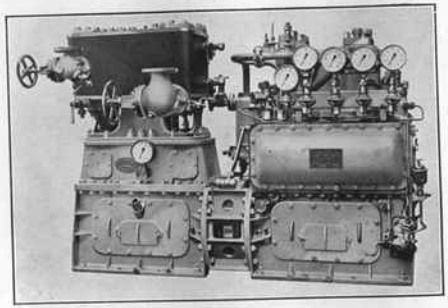

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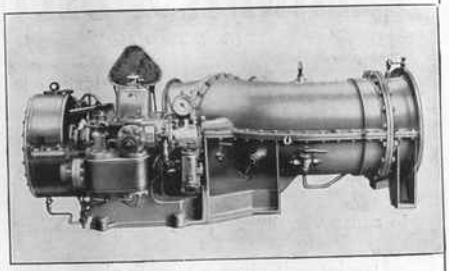

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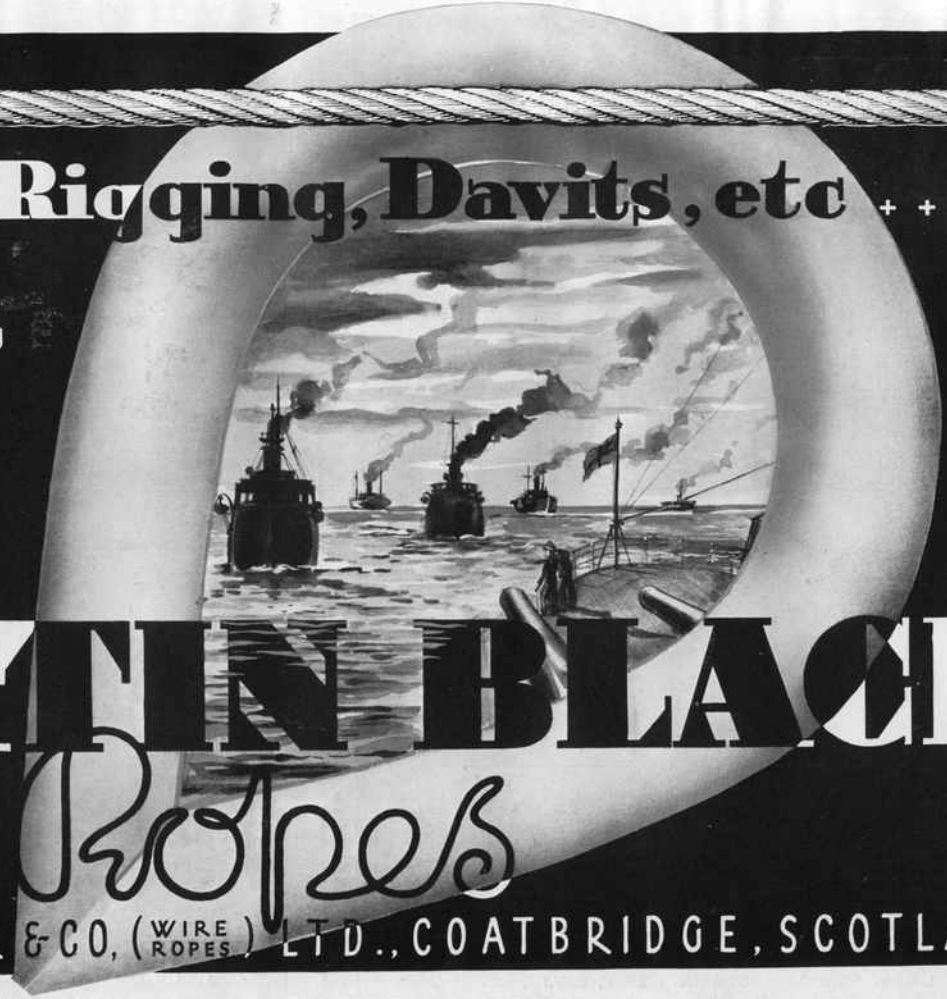

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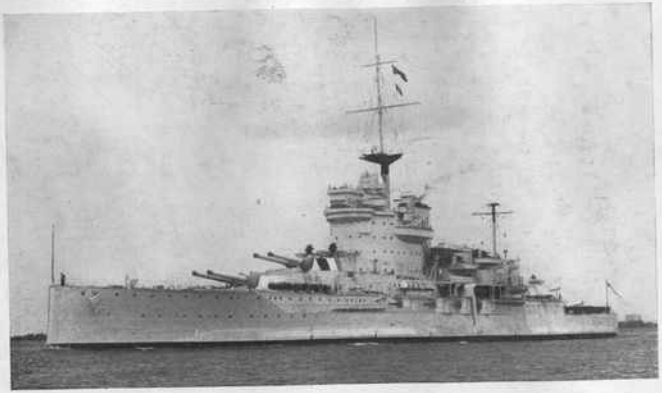

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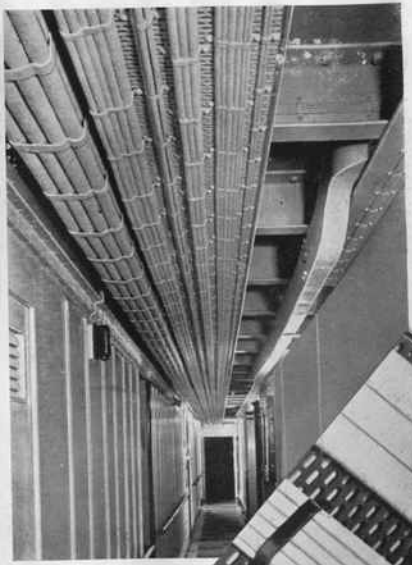

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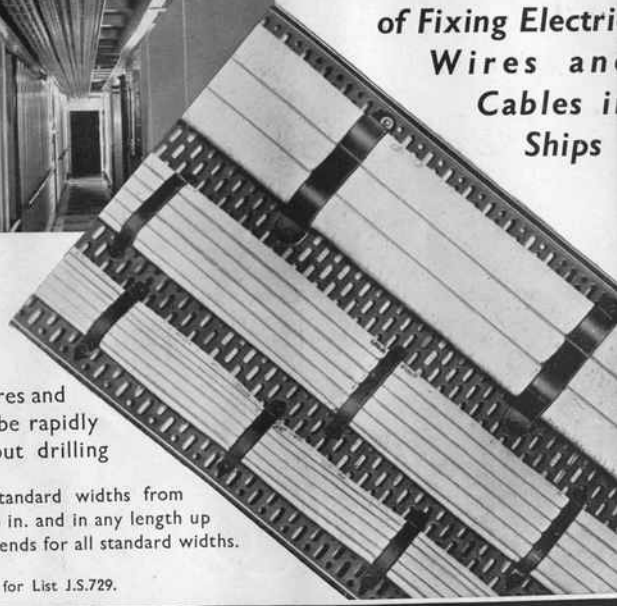

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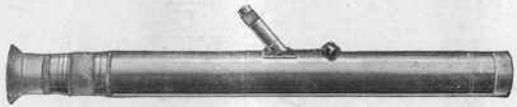

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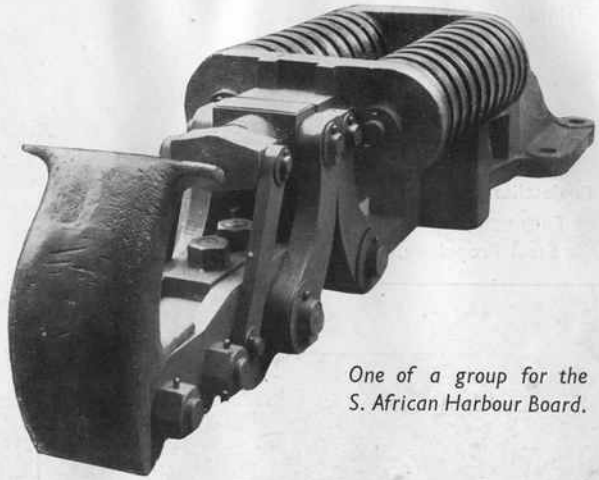

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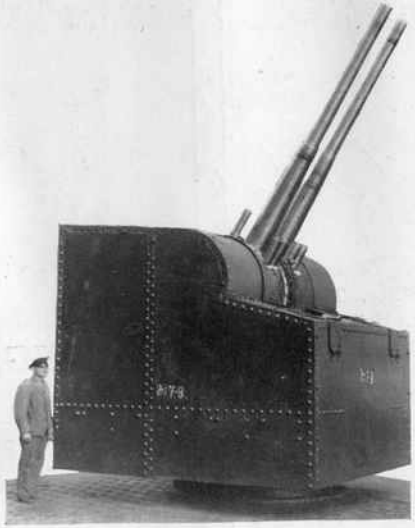

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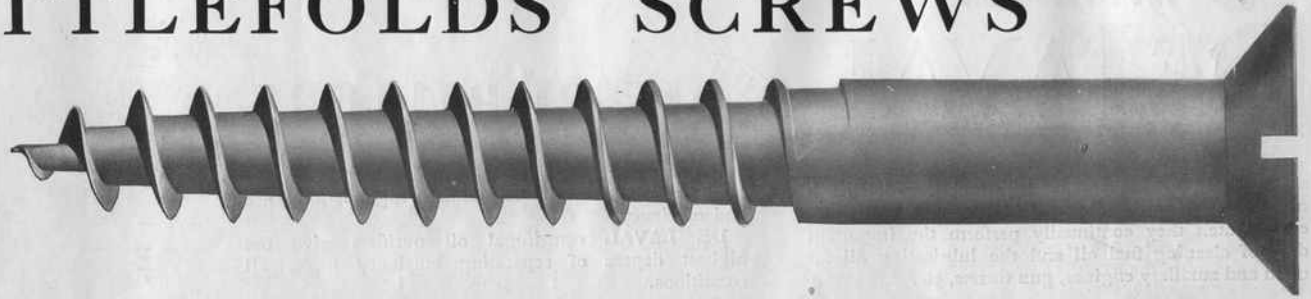

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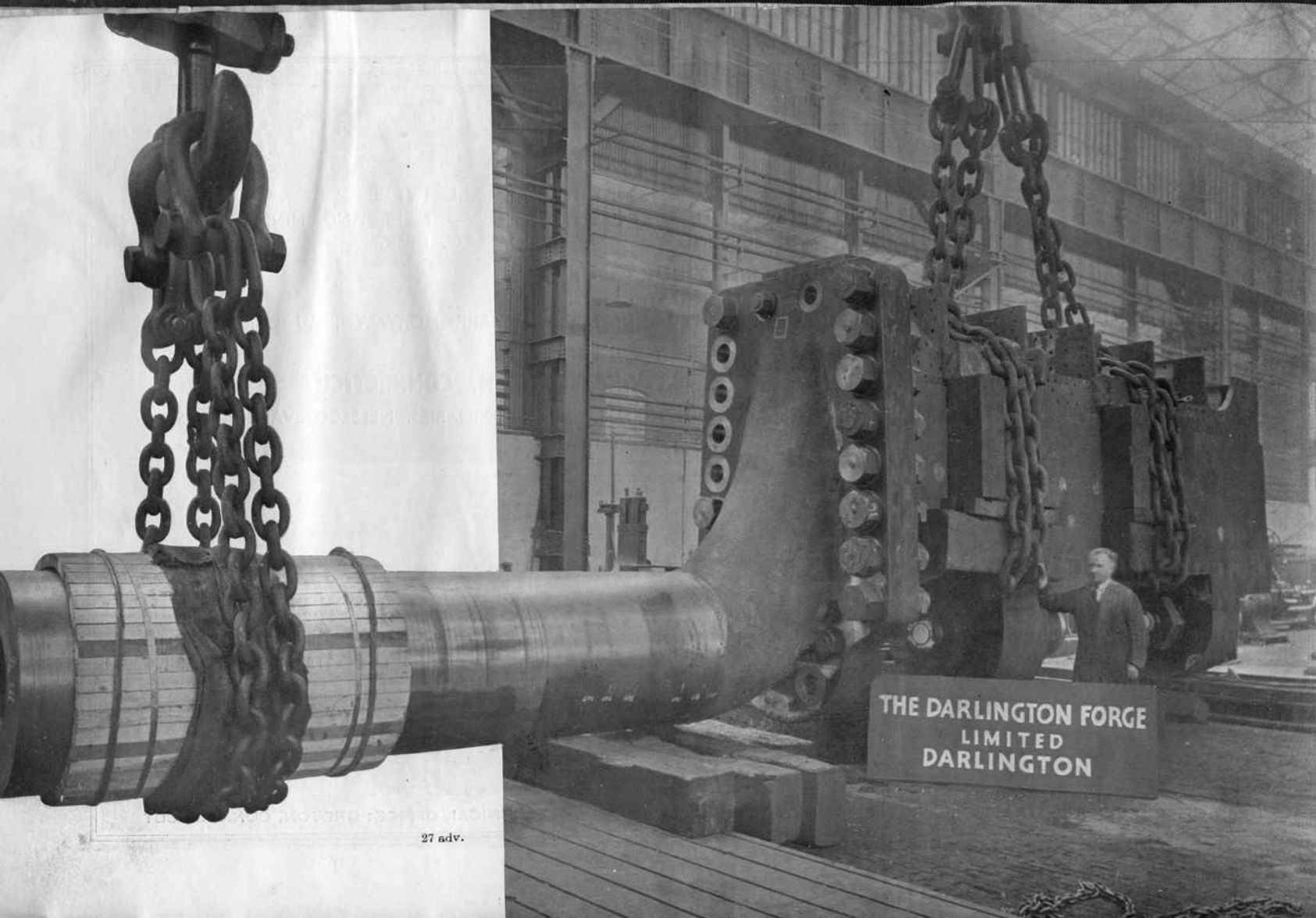
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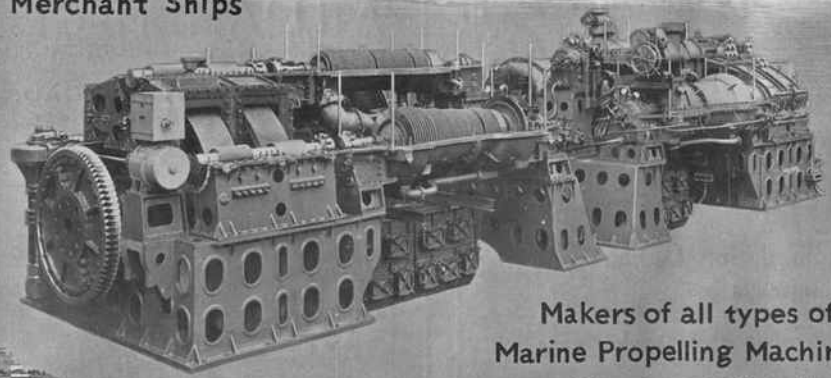

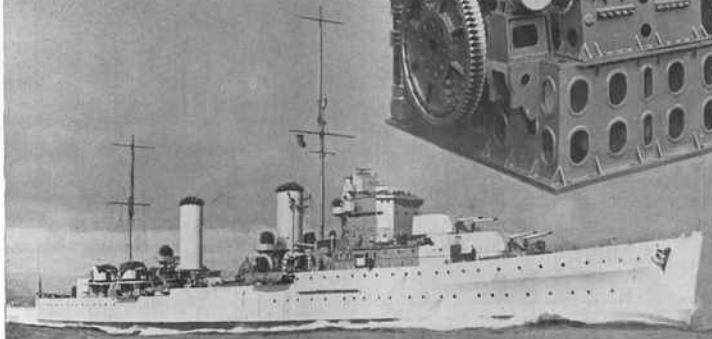

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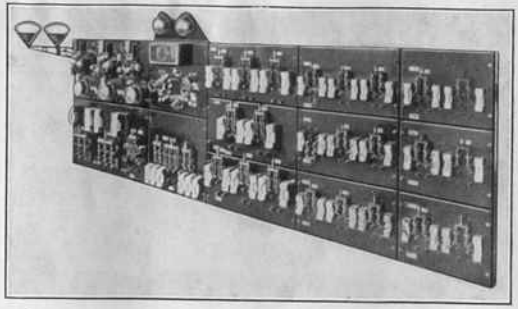

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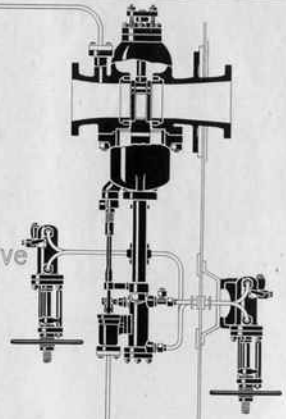

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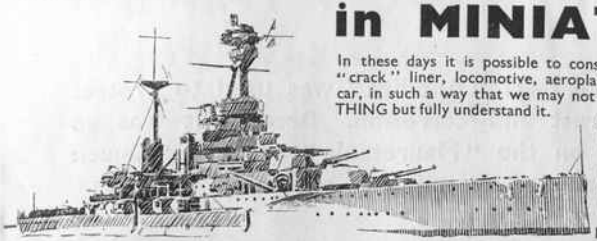

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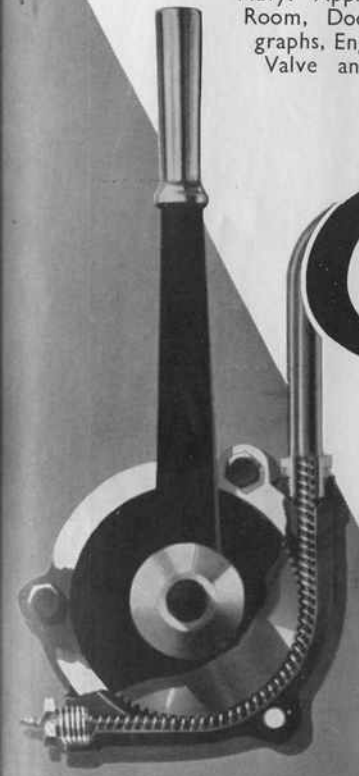

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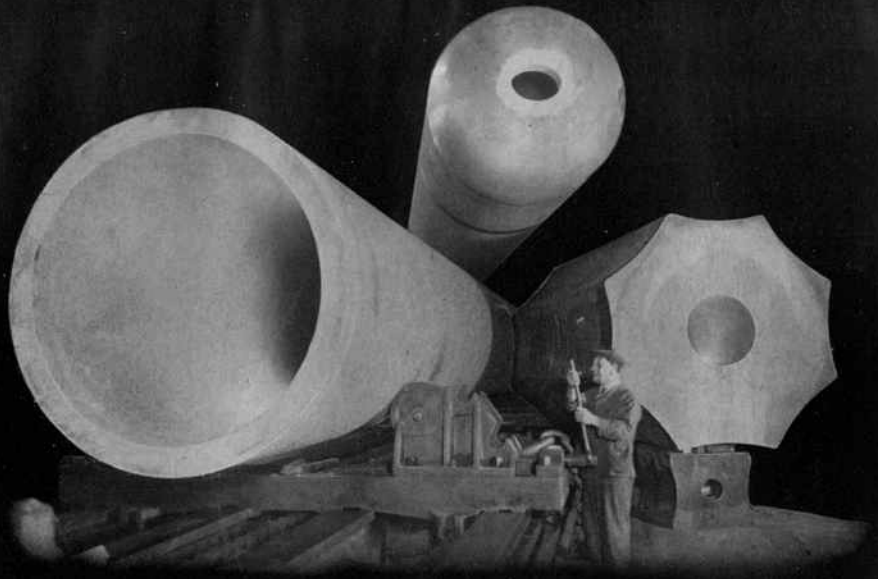

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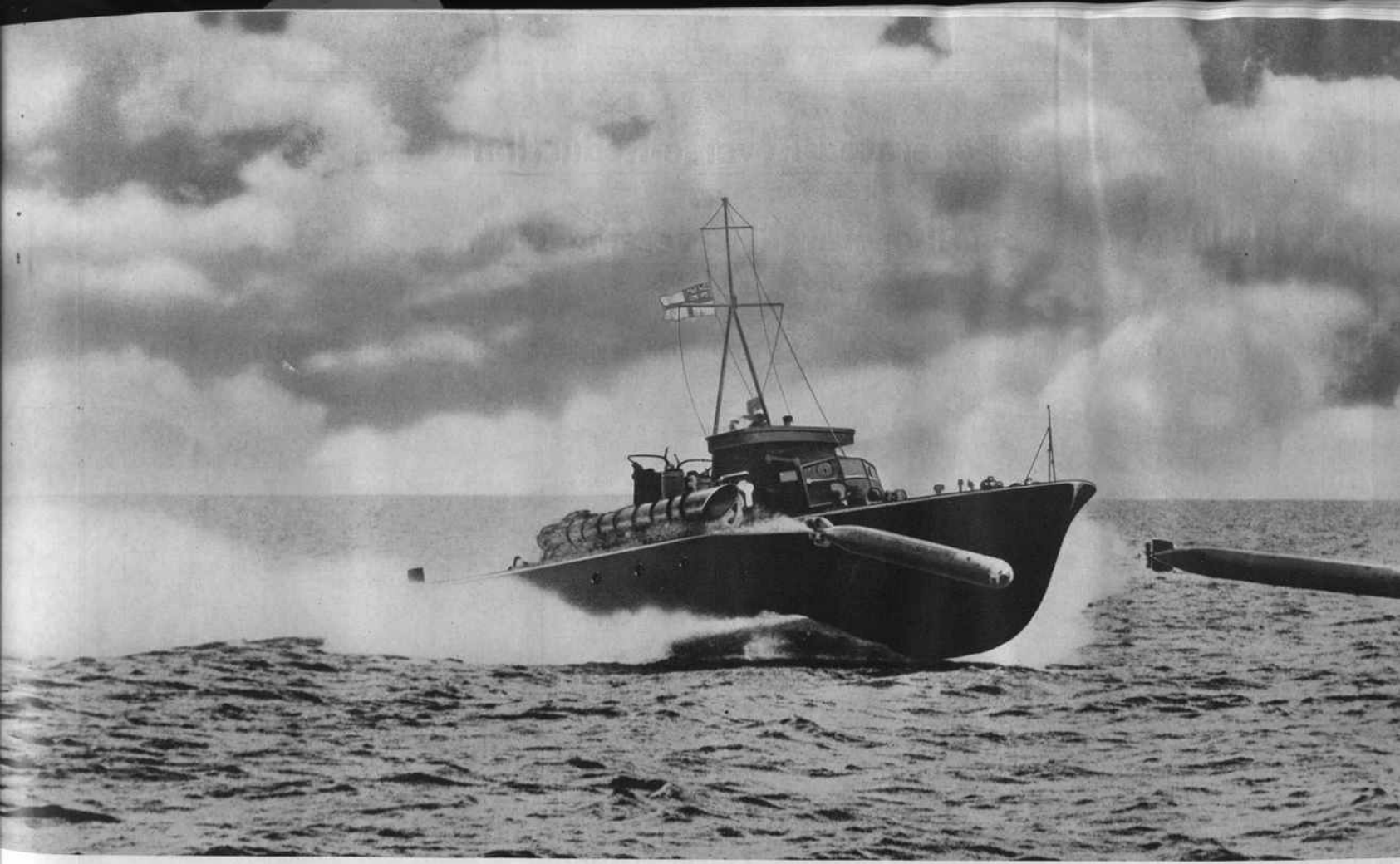

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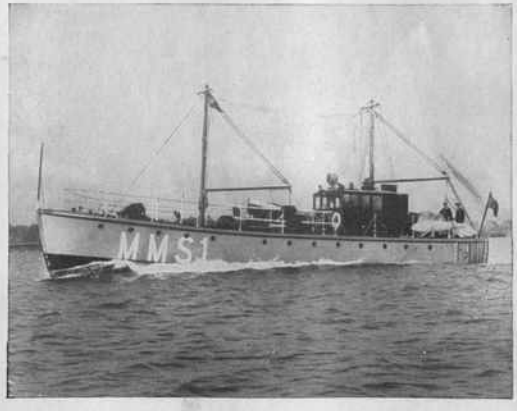

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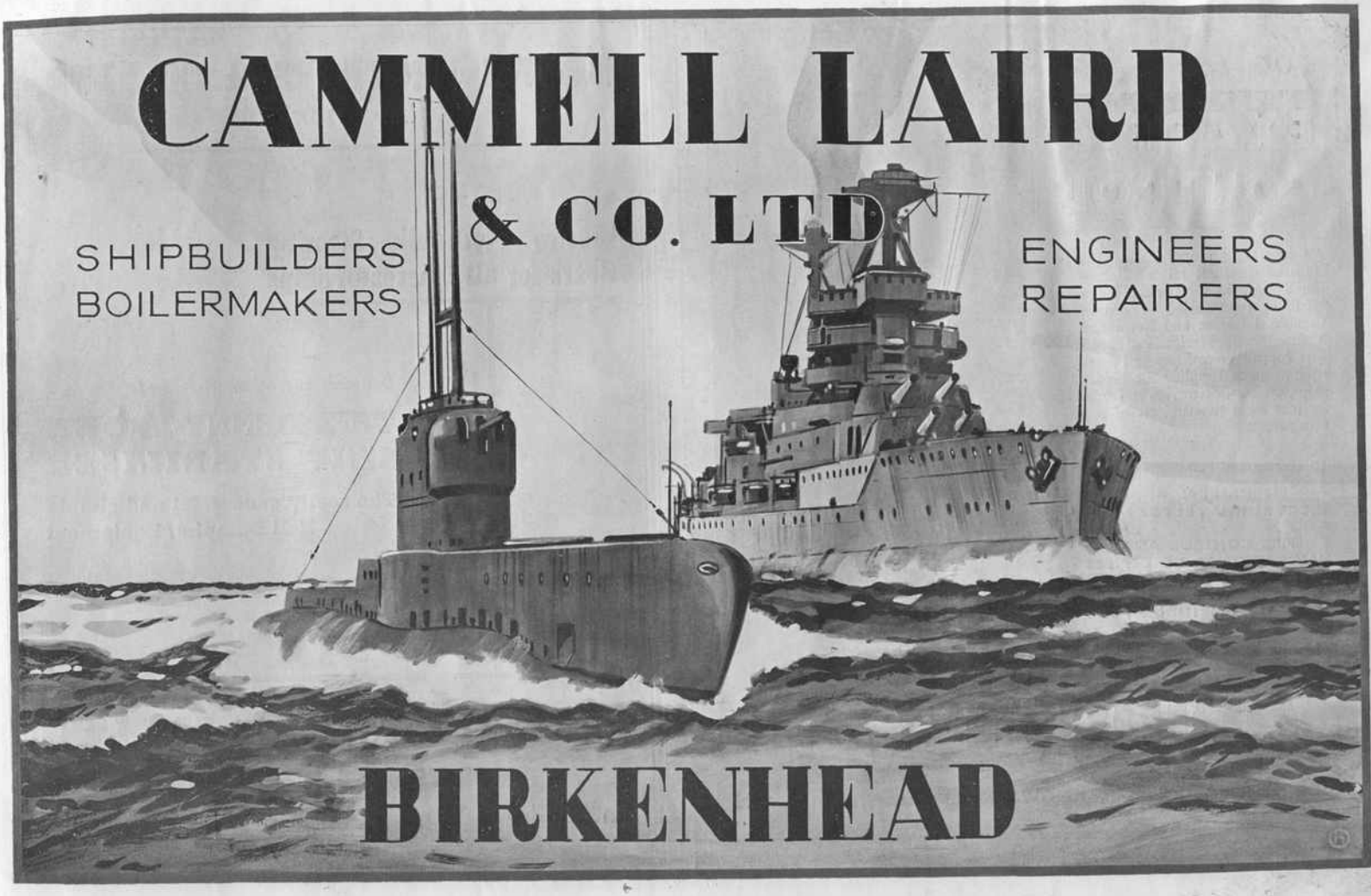
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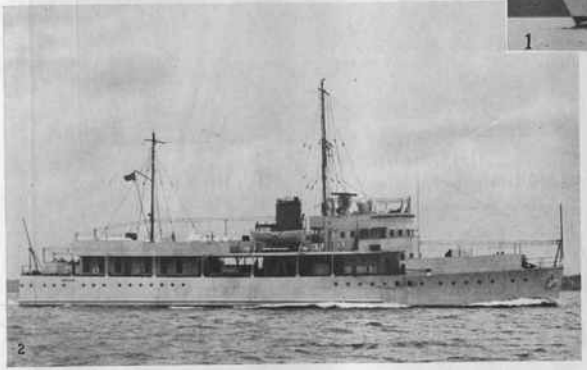
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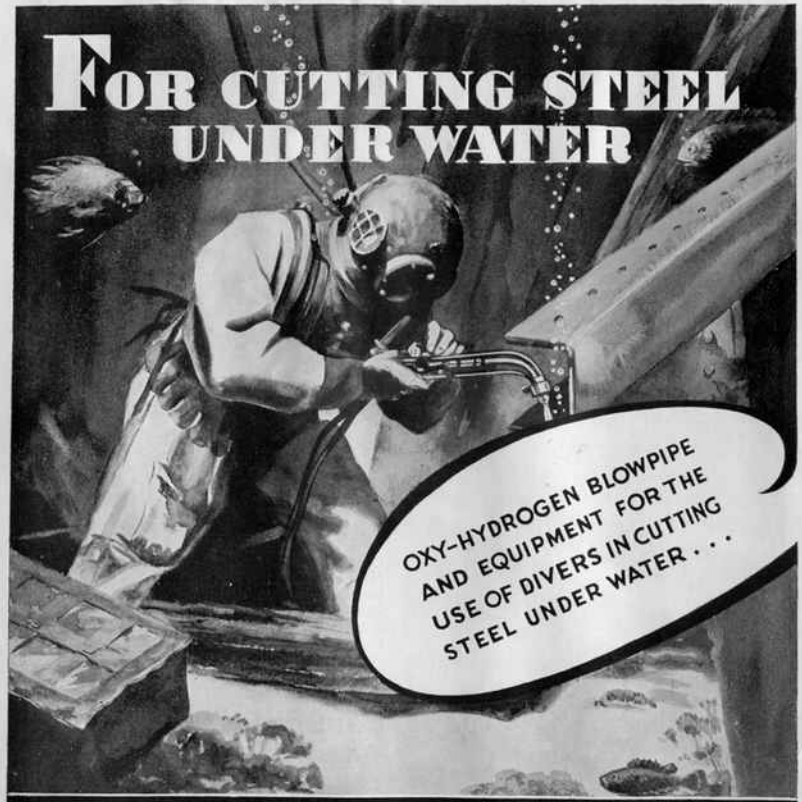

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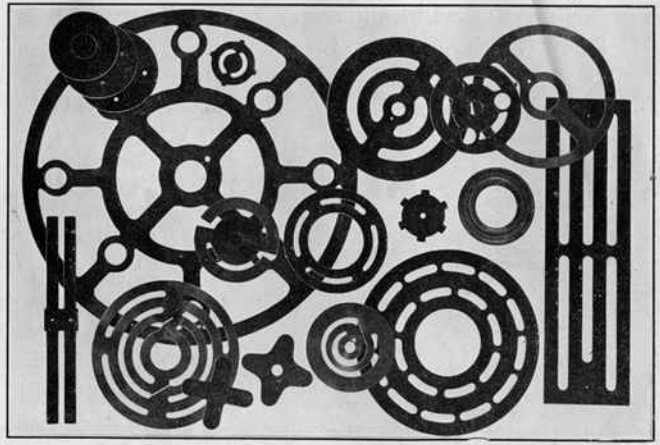

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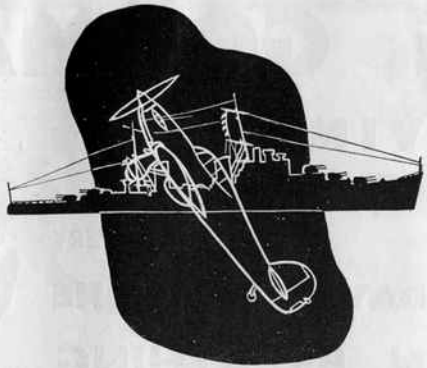

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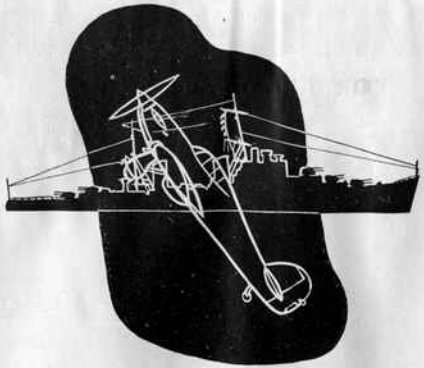

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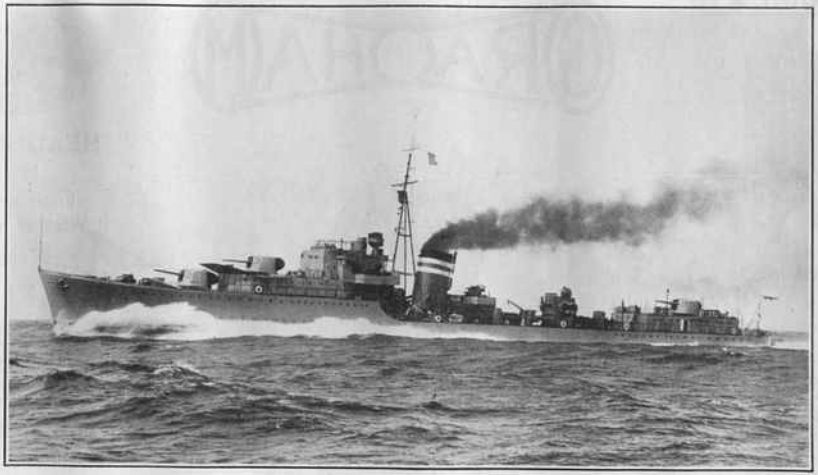

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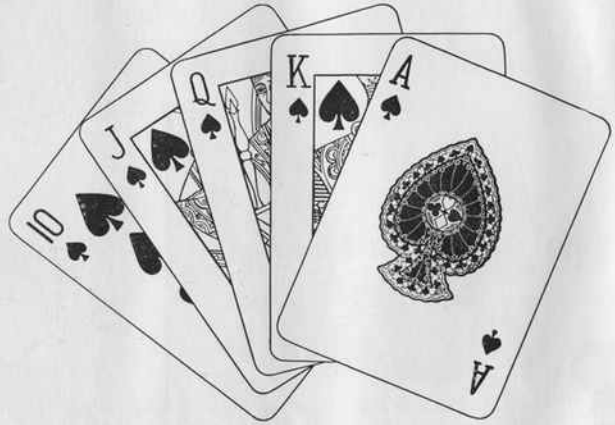

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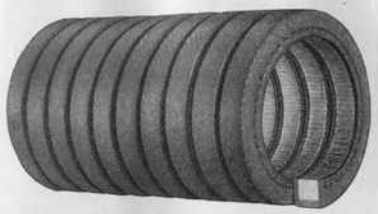

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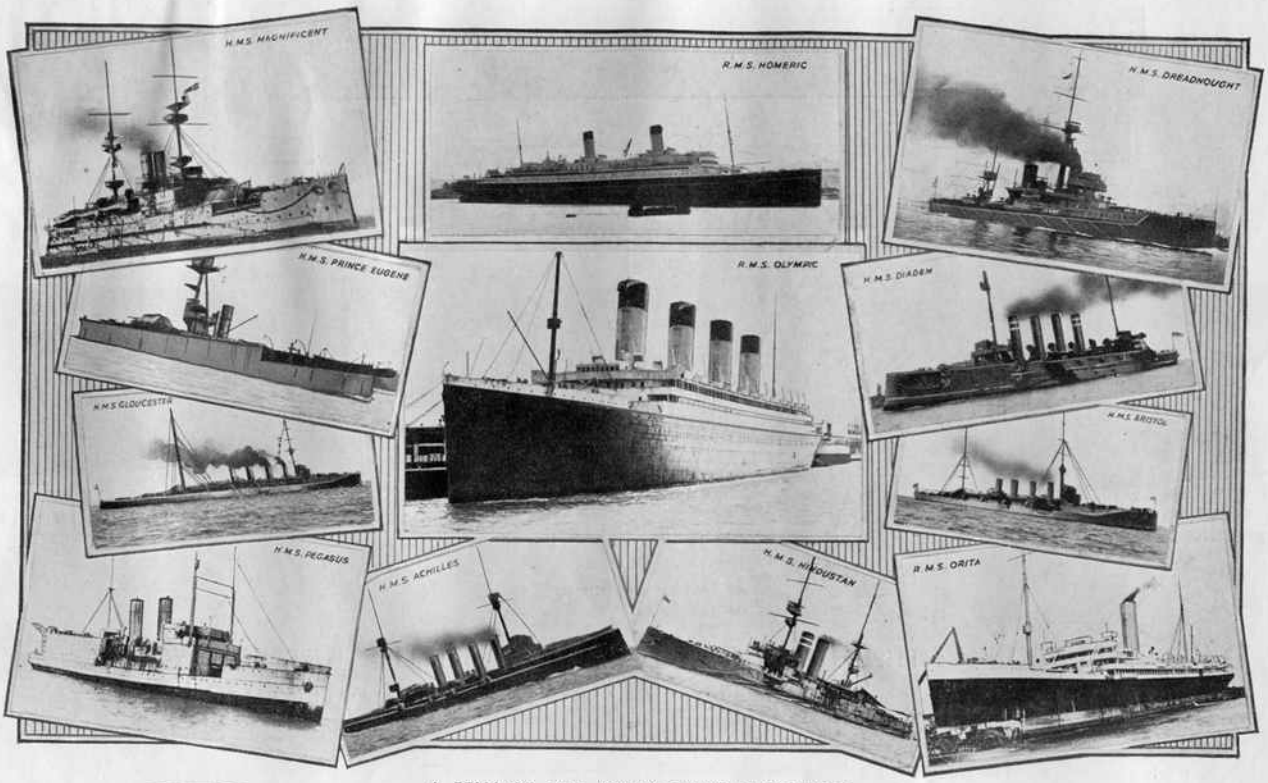

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1940

(ISSUED JANUARY, 1940)

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FORTY-FOURTH YEAR OF ISSUE

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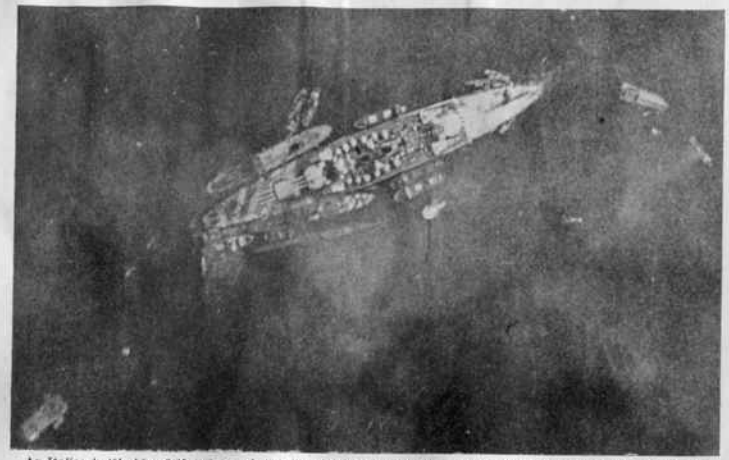
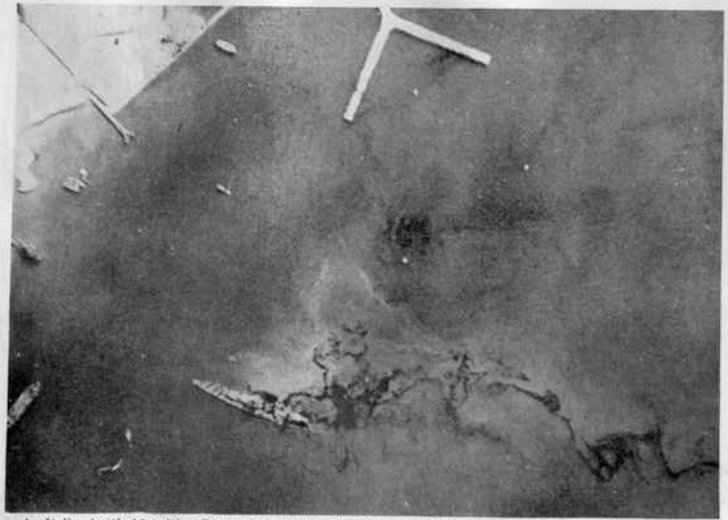
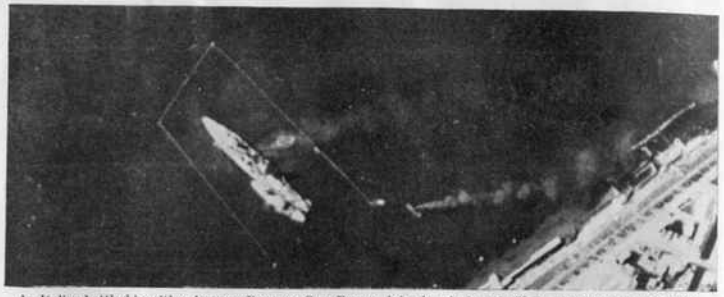


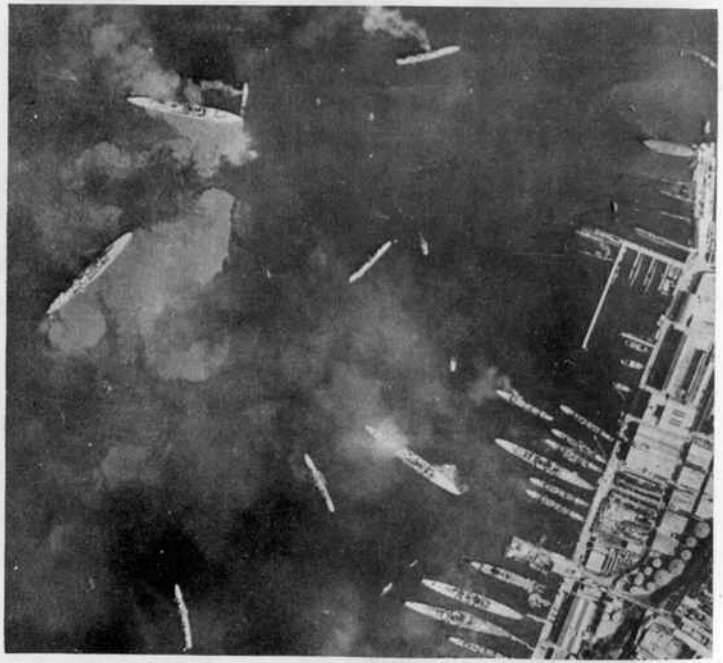
An Italian battleship of 35,000 tons, believed to be the VITTORIO VENETO, lying in the outer harbour of Taranto after being torpedoed by aircraft from H.M.S. ILLUSTRIOUS and EAGLE on Nov. 11, 1940. An oiler, a submarine, and sundry salvage craft can be seen alongside, with streaks of oil fuel in the surrounding water.



An Italian battleship, either CONTE DI CAVOUR or GIULIO CESARE lying, in an abandoned condition at Taranto. Her stern is submerged and the starboard side is awash. Immense quantities of oil fuel have escaped from her.



An Italian battleship, either ANDREA DORIA or CAIO DUILIO, lying beached on the N.E. side of the outer harbour. She is down by the head, with a list to starboard. A salvage vessel is lying alongside, and torpedo nets have been laid around her for protection against further attack.



Cruisers and destroyers in the inner harbour at Taranto. The two lying farthest out, both damaged, appear to be the BOLZANO and one of the TRENTO type. A little way from the quay, with smoke drifting across her, is the second ship of the TRENTO class.

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FOREWORD

THOUGH it had been hoped to bring out the present issue of *Fighting Ships* earlier than last year, circumstances arising from the War have conspired to cause unforeseen delays, particularly in connection with the illustrations. In spite of the many handicaps imposed, the number of new photos, plans and silhouettes is well up to the average of recent years. For this thanks are due in no small measure to the enthusiasm and energy with which the special correspondents of *Fighting Ships*, other than those whose activities have been suspended by the state of hostilities, have rallied to the support of the Editor.

For the first time since 1919, a War Loss section has been included in the prefatory pages. Though this cannot pretend to be exhaustive in the absence of complete information concerning enemy losses, every effort has been made to ensure its being as accurate as possible. In spite of this addition, it has been found possible by a rigorous overhaul of the make-up to reduce slightly the total number of pages without in any degree impairing the amount of information contained in the book.

An innovation which will be noticed in this issue is the addition to certain of the more important plans of a scale of length. Opinions on the usefulness of this will be welcomed.

There can be no question of the appreciation with which the very complete details of the contending navies given in the 1939 edition were received in every quarter. Not only have numberless readers written to express their satisfaction with the contents, but the increased demand was such that fresh printings were necessitated.

It would appear that the number of capital ships under construction or on order in the world is now not less than forty, even after allowance has been made for the assumed completion of certain units. With the exception of four Japanese vessels of the "pocket battleship" type, all are of at least 35,000 tons displacement; while twenty, if not more, are of 40,000 tons or over. A displacement of 52,000 tons has been suggested for some of the American battleships.

Comparatively few fresh facts and figures will be found in the British section, since it would obviously be improper to disclose anything that might conceivably be of the slightest value to the enemy. Yet opportunity has been taken to amplify and revise such details as the Press Censor was willing to pass, with the result that the account given of the British Fleet is as complete as could possibly be expected in war-time. Illustrations of our latest type of aircraft carrier and of the light destroyer type known as the *Hunt* class (formerly rated as "escort vessels") are amongst the items which we have been officially permitted to publish. A clearer plan of the new battleships of the *King George V* class has been substituted for the somewhat sketchy one which was all that the authorities would allow to appear last year.

Sundry modifications in the official classification of certain warships have been taken into account, necessitating some rearrangements.

Fresh photographs will be found in the Brazilian, Chilean, Dominican and Finnish sections. The last-named navy appears to have been very little affected by its conflict with the Soviet fleet.

Though particulars have been retained this year for purposes of reference, there is every reason to suppose that the bulk of the big programme of new construction which has been ordered or put in hand in French shipyards will never materialise. Hulls that were well advanced on the stocks or had just been launched in Atlantic ports are understood to have been blown up before the enemy occupation. The 35,000-ton battleship *Jean Bart*, afloat but incomplete, was taken to Casablanca, where facilities to finish her are lacking.

Present distribution of the French fleet is admittedly chaotic. Quite a number of ships are in British ports or operating at sea as part of the Free French forces. Some are laid up at Alexandria, others are immobilised in the West Indies, while, at the time of going to press, most of the remainder are reported to be either at Toulon, Casablanca or Dakar. Whether the battleships *Dunkerque* and *Provence*, heavily damaged in the British attack at Oran on July 3, will ever again be fit for fighting is questionable, but the probabilities seem to be against it. Certainly it would appear that the French Navy is no longer to be regarded as a first-class fleet, a sad calamity when one recalls the fine spirit that appeared to animate it in the early months of the war.

Such information as is available concerning the German Navy is scanty and vague. Nor is its authenticity to be guaranteed in the majority of

instances, a fact which has to be taken into account when perusing this section. It is quite likely that, just as in the last war, losses have been incurred of which nothing will be learned until hostilities cease. In the meantime, only those ships of whose loss there can be no reasonable doubt have been deleted. Thus, in the absence of any record of the numerical designations of the many U-boats destroyed, it has been necessary to retain in the text all those which existed when war began, with the solitary exception of *U*13, the extinction of which was announced by the Admiralty during 1940. How many submarines the Germans have under construction it is impossible to guess, since there is no solid basis for the American estimate of 300 published some time ago. This figure is by no means unreasonable, having regard to the experience of 1914–18, but the damage done by air attacks on German shipyards is a factor which has to be taken into account.

Reports that the battleships *Bismarck* and *Tirpitz* are in full commission must also be treated with caution. Having regard to the fact that these are by far the biggest warships ever built by Germany, it is a little difficult to believe that exceptional progress has been made with their construction as compared with the smaller *Scharnhorst* and *Gneisenau*, especially as it is evident that all possible efforts are being concentrated on submarine construction. It is possible that the *Bismarck* is ready for service, but the *Tirpitz* is more likely to be delivered some time next year, when the trials of her sister ship have afforded guidance as to any necessary modifications. Quite extensive alterations proved to be needed in the cases of the *Scharnhorst* and *Gneisenau*.

Though there is considerable uncertainty as to the type of ship to which the name *Deutschland* was assigned when the "pocket battleship" of that name was re-christened *Lützow*, the balance of probability is that it is the second aircraft carrier of the *Graf Zeppelin* type rather than the third battleship of the *Bismarck* class, and this explanation has been provisionally adopted in the present issue pending receipt of information to the contrary.

Every possible detail relating to the Italian Navy was carefully checked before it became involved in the war, and the account given in the present volume is therefore exceptionally full and accurate. Quite a number of new illustrations will be found in this section, notably of the *Littorio* type as completed, and of various smaller vessels of which photographs could not be secured before. In the frontispiece the damage done to various Italian warships is clearly shown. These photographs are eloquent in the impression which they convey of the crippling blow dealt to the Italian fleet on November 11, 1940.

Each year the Imperial Japanese Navy offers a more difficult problem, owing to the paucity of official information concerning its new ships. In spite of this, it will be found that quite an appreciable amount of fresh matter has been collected in the way of text, plans and even photographs. So hard is it to obtain pictures of new Japanese ships that *Fighting Ships* is practically the only publication that still succeeds in getting any. At least three battleships of over 40,000 tons and an equal number of "pocket battleships" appear to have been launched during 1939–40. Several new cruisers are believed also to have taken the water, while destroyers, submarines and light minelayers continue to accumulate.

Though the Royal Netherland Navy suffered some losses in its resistance to the German invasion, the bulk of its ships are still intact and doing good service. Of those under construction, the cruiser *Heemskerck*, the destroyer *Isaac Sweers* and the submarines *O* 23 and *O* 24 were brought away to be completed in this country. Other new tonnage on the stocks was destroyed before Dutch ports were evacuated.

In the case of the Royal Norwegian Navy, it was impossible to bring away as many ships, so that a good deal of tonnage has fallen into the hands of the enemy, including the minelayer *Olav Tryggvason*. She is said to have been renamed *Albatros*, which lends colour to the report that the German torpedo boat of that name was sunk in Oslo Fiord last April.

Though sadly reduced in numbers for the time being, the Polish fleet has not failed to give an excellent account of itself whenever it has come in contact with enemy forces. Other ships are stated to have been placed at the disposal of the Polish naval authorities by the Admiralty in place of some of those which have been lost, though details of these temporary war-time transfers are not available.

The Soviet Navy continues to preserve the utmost secrecy concerning its developments, but this year nine new photographs have been secured, together with a good deal of additional information which should add materially to the reference value of this section.

For the first time since 1935, a complete official revision of the Spanish Navy has been obtained. Certain old ships which were no longer serviceable have been discarded, while the construction of new ones, suspended during the Civil War, has been resumed.

Sweden continues to add to her naval strength as rapidly as circumstances will permit. In addition to tonnage acquired from Italy, new destroyers, submarines and minesweepers are being built.

In the United States Navy the biggest series of construction programmes in its history has been approved. Altogether there are building or on order: 17 battleships, 12 aircraft carriers, 48 cruisers, 160 destroyers, 23 torpedo boats, 80 submarines, 25 submarine chasers, 19 aircraft tenders, 3 minelayers, 32 netlayers, 3 minesweepers, and 3 submarine tenders; while the number of merchant vessels taken over for conversion into fleet auxiliaries increases daily. It is evident that the shipbuilding capacity of the country will be fully engaged for some years to come, and it will probably not be found possible to lay down all the ships authorised before the end of 1941.

Additional illustrations have been secured for the Navies of Uruguay and Yugoslavia, of which a very complete record is thus presented.

For the fact that the 1940 edition of *Fighting Ships* contains so much fresh matter and is up to date in nearly every department, thanks are largely due to the various Admiralties, Ministries of Marine, Ministries of Defence, Navy Departments and Naval Staffs who have responded officially to requests for official revision of the book's contents. In nearly every case the information has been furnished through the kind offices of the respective Naval Attachés or other representatives in London, of whom the following should be mentioned: Vice-Admiral Juan T. Gerken, Chilean Navy; Captain Count F. Capponi, Royal Italian Navy (prior to the outbreak of war with Italy); Captain C. Denis de Rivoyre, French Navy; Captain Alan G. Kirk and Lieutenant F. X. Forest (C.C.), of the United States Navy; Captain T. Kondo, I.J.N.; Captain N. J. Wesström, Royal Swedish Navy; Captain S. Matessis, Royal Hellenic Navy; Rear-Admiral G. St. Dumitrescu, C.V.O., Royal Roumanian Navy; Engineer Captain Natal Arnaud, Brazilian Navy; Commander Alberto F. Job, Argentine Navy; Commander Holger Gröndahl, Finnish Navy; Rear-Admiral J. Swirski and Commander T. Stoklasa, Polish Navy; Commander S. Cakir, Turkish Navy; Commander J. E. Jacobsen, Royal Norwegian Navy; Rear-Admiral J. Th. Furstner and Lieutenant-Commander A. de Booy, Royal Netherland Navy; and the Rear-Admiral commanding H. M. Yachts, Royal Egyptian Navy.

Correspondence containing items of information from every part of the world has been heavier than ever during the past twelve months. Especially are thanks due to Mr. K. A. Knowles, Editor of *Our Navy*, and Mr. James C. Fahey, Editor of *Ships and Aircraft*, whose collaboration has been as valuable as it has been cordial.

Private individuals who have helped in various ways with corrections, information and photographs include (in addition to a number who prefer to remain anonymous): Dott. Ing. L. Accorsi; Mr. Raymond V. B. Blackman; the Rev. R. D. Clarke; Mr. Windsor Davies; Mr. William H. Davis; Mr. Eric H. Hanson; Mr. F. H. James; Mr. Irvine Keenleyside; Mr. Jay Launer; M. Maurice Lebigre; M. Henri Le Masson; Primeiro Tenente Aluino Martins da Silva; Dr. Ing. W. V. Mendl, M.I.N.A.; Mr. R. Perkins; Mr. Cyril W. E. Richardson; Mr. Douglas Robinson; Ir. R. F. Scheltema de Heere; Mr. Theodore N. Silberstein; Mr. Paul J. Tasso; Mr. Matthew Thomlinson; and Commander G. H. Trudgett, Chilean Navy.

As always, Mr. Maurice Prendergast, to whom *Fighting Ships* has owed so much in the past, continues to be one of the book's staunchest friends.

Without the aid of so many voluntary helpers, the Editor, whose time has been more fully occupied than ever since the country has been at war, would not have been able to present so full an account of the world's navies.

Errors and omissions it is impossible altogether to avoid, but those who may notice either are asked to write to the Editor, care of the Publishers, at the address given on the title page. It should be noted in this connection that Press pictures of warships, though seldom suitable for reproduction, are often of considerable value for reference.

THE PUBLISHERS.

WAR LOSS SECTION

BRITISH

Battleship

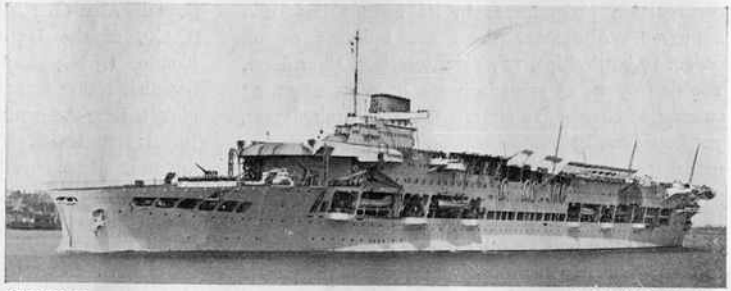
ROYAL OAK. 1936, *Wright & Logan.*

ROYAL OAK (1914). 29,150 tons.
Torpedoed by enemy submarine in Scapa Flow, Oct. 14, 1939.

Aircraft Carriers

COURAGEOUS. 1936, *Cribb.*

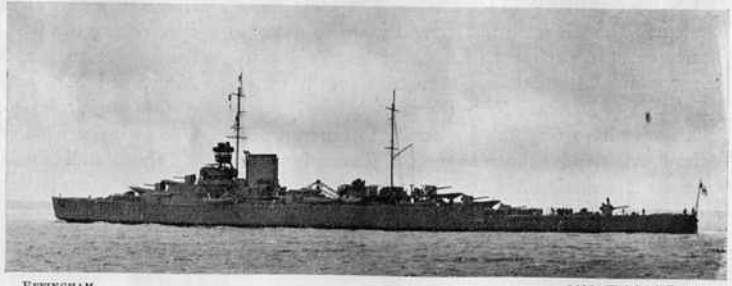
COURAGEOUS (1916). 22,500 tons.
Torpedoed by enemy submarine, Sept. 17, 1939.



GLORIOUS. 1935, *Cribb (added 1936).*

GLORIOUS (1916). Sister ship to *Courageous*, previous column.
Sunk in action with German battleships *Scharnhorst* and *Gneisenau*, off North Norway, June 8, 1940.

Cruisers



EFFINGHAM. 1938, *Wright & Logan.*

SOUTHAMPTON (1936). 9,100 tons.
Lost as result of catching fire in action with German bombing aircraft Jan. 10, 1941.

EFFINGHAM (1921). 9,550 tons.
Lost on an uncharted rock on Norwegian coast, May 21, 1940.

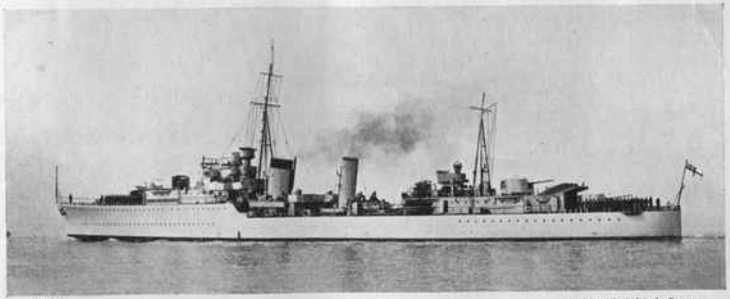
CALYPSO (1917). 4,180 tons.
Torpedoed by an Italian submarine in the Eastern Mediterranean, June 1940.

Anti-Aircraft Ship

CURLEW. 1936, *Grand Studios, Malta.*

CURLEW (1917). 4,290 tons.
Sunk by bombs from enemy aircraft while lying in a Norwegian fiord, May 1940.

Destroyers



AFRIDI. 1938 ,*Wright & Logan.*

AFRIDI (1937). 1,870 tons.
Sunk in action with enemy aircraft, May 3, 1940.

GURKHA (1937). Sister ship to *Afridi*, above.
Foundered after being damaged by bombs from enemy aircraft, April 8, 1940.

IMOGEN (1936). 1,370 tons.
Sunk by collision in fog, July 1940.

IVANHOE (1937). Sister ship to *Imogen*, above.
Mined in North Sea, Sept. 1, 1940.

HAVANT (1939). 1,340 tons.
Sunk in action with enemy aircraft off Dunkirk, June 1, 1940.

HUNTER (1936). Sister ship to *Havant*, above.
Sunk in action with German destroyers at Narvik, April 10, 1940.

HOSTILE (1936). Sister ship to *Havant*, above.
Mined, August 1940.

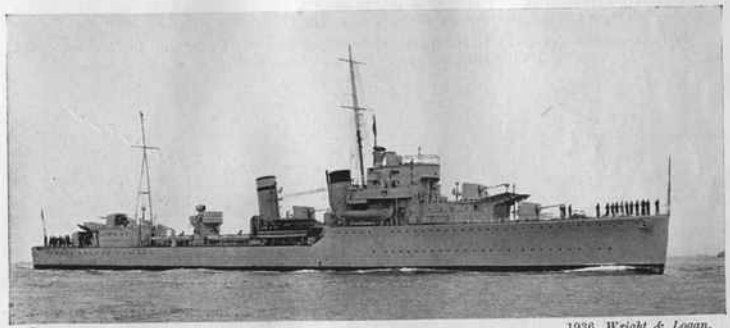
HARDY (1936). 1,505 tons. Similar to *Havant*, above, but fitted as Leader.
Foundered after being damaged in action at Narvik, April 10, 1940.

GRAFTON (1935). 1,335 tons.
Torpedoed by enemy motor torpedo boat off Dunkirk, May 29, 1940.

GRENADE (1935). Sister ship to *Grafton*, above.
Sunk in action with enemy aircraft off Dunkirk, May 29, 1940.

GIPSY (1935). Sister ship to *Grafton*, above.
Mined Nov. 21, 1939.

GLOWWORM (1935). 1,345 tons. Similar to *Grafton*, above.
Sunk in action with German squadon off Norwegian coast, April 8, 1940.

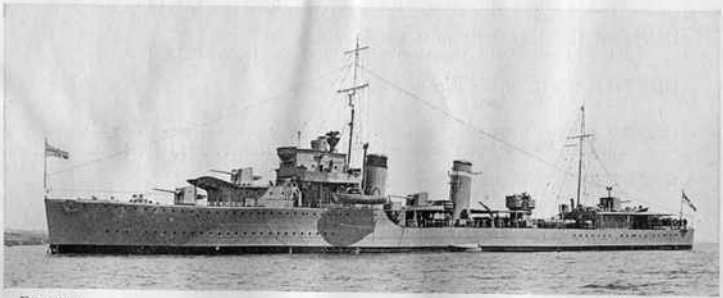


GRENVILLE. 1936, *Wright & Logan.*

GRENVILLE (1935). 1,485 tons. Similar to *Glowworm* above, but fitted as Leader.
Mined or torpedoed in North Sea, Jan. 20, 1940.

ESCORT (1934). 1,375 tons.
Torpedoed in Eastern Mediterranean, and subsequently foundered, July 1940.

ESK (1934). Sister ship to *Escort*, above.
Mined or torpedoed in North Sea, Sept. 1, 1940.



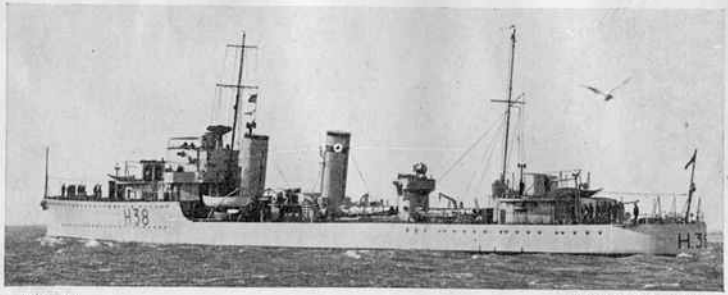
EXMOUTH. 1935 *R. Perkins.*

EXMOUTH (1934). 1,475 tons. Similar to *Escort*, previous page, but fitted as Leader.
Mined or torpedoed in North Sea, Jan. 21, 1940.

DUCHESS (1932). 1,375 tons.
Sunk by collision in North Channel, Dec. 13, 1939.

DARING (1932). Sister ship to *Duchess*, above.
Torpedoed by German submarine, Feb. 18, 1940.

MARGAREE (ex-*Diana*) (1932) (Royal Canadian Navy). Sister ship to *Duchess*, above.
Lost by collision with merchant vessel, October 1940.



DELIGHT. 1935, *Wright & Logan.*

DELIGHT (1932). Sister ship to *Duchess*, above.
Sunk in action with enemy aircraft at Dover, July 29, 1940.

FRASER. 1932, *R. Perkins.*

FRASER (1931). 1,375 tons. (Royal Canadian Navy.)
Sunk by collision in the Gironde, June 1940.

KEITH (1930). 1,400 tons.
Sunk in action with enemy aircraft off Dunkirk, June 1, 1940.

BLANCHE (1930). 1,360 tons. Similar to *Keith*, above.
Mined in North Sea, Nov. 13, 1939.

BASILISK (1930). Sister ship to *Blanche*, above.
Sunk in action with enemy aircraft off Dunkirk, June 1, 1940.

BRAZEN (1930). Sister ship to *Blanche*, above.
Foundered in tow after being damaged by bombs from enemy aircraft, July 21, 1940.

ACASTA, ARDENT (1929). 1,350 tons.
Sunk in action with German battleships *Scharnhorst* and *Gneisenau*, off North Norway, June 8, 1940.

ACHERON. 1931 *Photo. Cribb.*

ACHERON (1930). Similar to *Acasta* and *Ardent*, above.
Lost in December, 1940.

Destroyers—*continued*

WREN (1919). 1,120 tons.
Sunk in action with enemy aircraft, July 28, 1940.

WHIRLWIND (1917). 1,100 tons.
Torpedoed in July 1940.

WESSEX (1918). 1,100 tons.
Sunk in action with enemy aircraft off French coast, May 25, 1940.

VENETIA (1917). 1,090 tons.
Mined, October 1940.

WAKEFUL (1917). 900 tons.
Sunk in action with enemy aircraft off Dunkirk, May 30, 1940.

WHITLEY. 1938, *Medway Studios.*

WHITLEY (1918). 900 tons.
Beached on Dutch coast after action with enemy aircraft, May 20, 1940.

VALENTINE (1917). 900 tons.
Beached on Dutch coast after action with enemy aircraft, May 15, 1940.

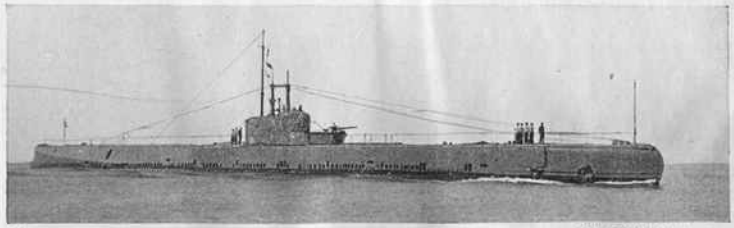
STURDY (1919). 905 tons.
Wrecked on Scottish coast, November 1940.

HYPERION (1936). 1,340 tons.
Mined or torpedoed, January 1941.

Submarines

TARPON (1939), **THISTLE** (1938). 1,090 tons. Both missing during April 1940.

TRIAD (1939). Sister ship to *Tarpon* and *Thistle*, above. Missing, November 1940.



NARWHAL 1936, *Wright & Logan.*

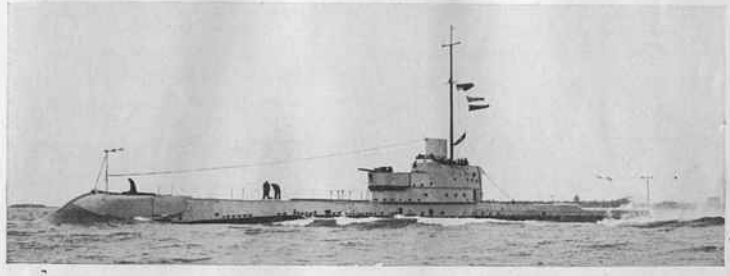
GRAMPUS (1936), **NARWHAL** (1935), **SEAL** (1938). Missing during June, August and May, 1940, respectively.

THAMES (1932). 1,805 tons. Missing, Sept. 1940.

RAINBOW (1930). 1,475 tons. Missing, November 1940.

REGULUS (1930). Sister ship to *Rainbow*, above. Missing, January 1941.

PHOENIX (1929). 1,475 tons. Missing, August 1940.



OSWALD. 1930 *Photo, Cribb.*

OSWALD (1928). 1,475 tons. Sunk by Italian destroyer *Ugolino Vivaldi*, August 1940.

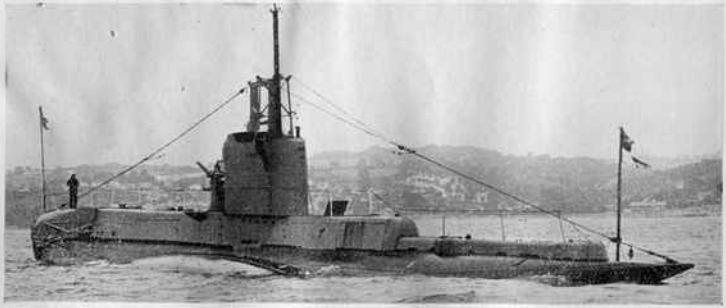
ODIN (1928), **ORPHEUS** (1929). Sister ships to *Oswald*, above. Both missing during August 1940.

OXLEY (1926). 1,354 tons. Destroyed by accidental explosion, Sept. 1939.

STERLET (1937), **SHARK** (1934), **SALMON** (1934), **SPEARFISH** (1936). 670 tons. All reported missing; in April (*Sterlet*), July (*Shark* and *Salmon*), and August, 1940 (*Spearfish*).

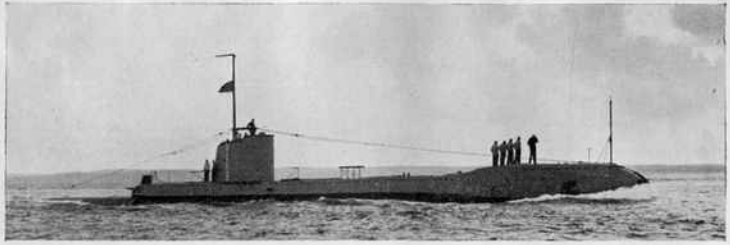
SEAHORSE (1932), **STARFISH** (1933). 640 tons. Missing, January 1940.

Submarines—*continued*



SWORDFISH. 1937, *R. Perkins.*

SWORDFISH (1931). Sister ship to *Seahorse* and *Starfish*, previous page. Missing, December 1940.



UNDINE. 1938, *Wright & Logan.*

UNDINE (1937). 540 tons. Missing, January 1940.

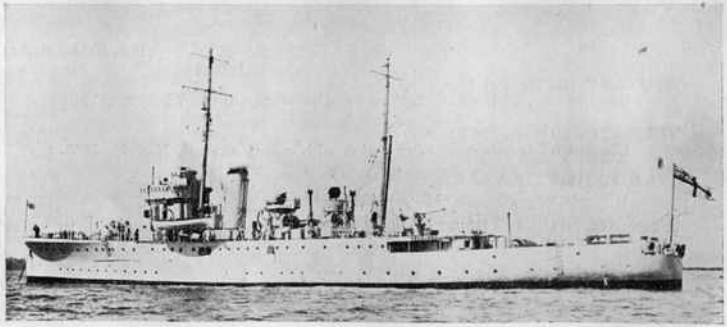
H 49 (1919). 410 tons. Missing, November 1940.

Sloops—Escort type

BITTERN. 1938, *Wright & Logan.*

BITTERN (1937). 1,190 tons.
Set on fire by bombs from enemy aircraft at Namsos, May 1, 1940.

DUNDEE (1932). 1,060 tons.
Torpedoed by enemy submarine, Sept. 1940.



PENZANCE. 1939, *P. A. Vicary, Cromer.*

PENZANCE (1930). 1,025 tons.
Torpedoed by enemy submarine, Aug. 29, 1940.

Fleet Minesweepers

SPHINX (1939). 875 tons.
Capsized in heavy weather after being damaged in action with enemy aircraft, Feb. 3, 1940.

SKIPJACK (1934). 815 tons.
Lost during Dunkirk withdrawal operations, June 1, 1940.

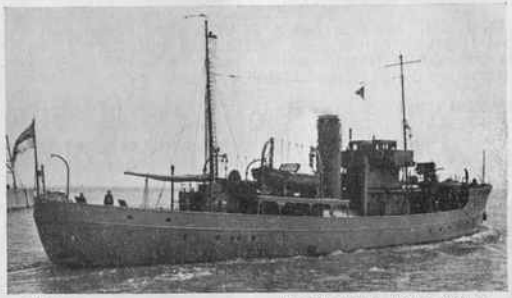
DUNOON (1919). 710 tons.
Mined, April 30, 1940.

DUNDALK (1919). Sister ship to *Dunoon*, above.
Mined, October 1940.

Gunboat

MOSQUITO (1940).
Lost during Dunkirk withdrawal operations, June 1940.

Trawlers



MASTIFF. *Added* 1940, *P. A. Vicary, Cromer.*

MASTIFF (1938). 520 tons.
Mined, Nov. 1939.

JUNIPER (1940). 600 tons.
Missing in Norwegian waters, June 1940.

HICKORY (1940). Sister ship to *Juniper*, previous column.
Mined, November 1940.

AMETHYST (1934). 627 tons.
Mined, December 1940.

MYRTLE (1929). 550 tons.
Mined, June 14, 1940.

TAMARISK (1925). 545 tons.
Sunk in action with enemy aircraft, August 1940.

JAMES LUDFORD (1918). 506 tons.
Mined, Dec. 15, 1939.

CAPE CHELYUSKIN (1936). 494 tons *gross*.
Sunk in action with enemy aircraft, May 1940.

KINGSTON CORNELIAN (1934). 449 tons *gross*.
Sunk by collision with French s.s. *Chella* in Strait of Gibraltar, January 5, 1940.

KINGSTON GALENA (1934). 415 tons *gross*.
Sunk in action with enemy aircraft, July 1940.

KINGSTON ALALITE (1933). 412 tons *gross*.
Mined, November 1940.

PERIDOT (ex-*Manchester City*) (1933). 398 tons *gross*.
Mined, March 15, 1940.

WESTELLA (1934). 413 tons *gross*. **STELLA DORADO** (1935). 416 tons *gross*.
Both lost during Dunkirk withdrawal operations, June 1940.

WARWICK DEEPING (1934). 445 tons *gross*.
Lost through enemy action, October 1940.

NORTHERN ROVER (1936). 655 tons *gross*.
Missing, Nov. 1939.

ARAGONITE (1934). 315 tons *gross*.
Mined, Nov. 22, 1939.

WASHINGTON (1909). 209 tons *gross*.
Mined, Dec. 6, 1939.

WILLIAM HALLETT (1919). 202 tons *gross*.
Mined, Dec. 14, 1939.

EVELINA (1919). 202 tons *gross*. **SEDGEFLY** (ex-*Norman*) (1939). 520 tons *gross*. **LOCH DOON** (1937). 534 tons *gross*.
All 3 missing, Dec. 1939.

VALDORA (1916). 251 tons *gross*.
Missing, Jan. 1940.

FORT ROYAL (1931). 351 tons *gross*. **ROBERT BOWEN** (1918). 290 tons *gross*.
Both sunk in action with enemy aircraft, Feb. 9, 1940.

Trawlers—*continued*

FIFESHIRE (1938). 540 tons *gross*.
Sunk in action with enemy aircraft, Feb. 20, 1940.

BENVOLIO (1930). 352 tons *gross*.
Mined, Feb. 23, 1940.

MAIDA (ex-*Chestnut*) (1914). 107 tons *gross*.
Mined, March 16, 1940.

LOCH ASSATER (1910). 210 tons *gross*.
Mined, March 23, 1940.

RUTLANDSHIRE (1936). 458 tons *gross*. **HAMMOND** (1936). 452 tons *gross*.
Both sunk by enemy aircraft at Namsos, April 20, 1940.

LARWOOD (1936). 452 tons *gross*.
Set on fire by bombs from enemy aircraft, Norway, April 1940.

BRADMAN (1937). 452 tons *gross*. **CAPE SIRETOKO** (1939). 590 tons *gross*.
Both sunk in action with enemy aircraft, Norway, April 1940.

WARWICKSHIRE (1936). 466 tons *gross*.
Sunk in action with enemy aircraft, Norway, May 1940.

ASTON VILLA (1937). 546 tons *gross*. **GAUL** (1936). 531 tons *gross*. **JARDINE** (1936). 452 tons *gross*. **ST. GORAN** (1936). 565 tons *gross*.
All 4 damaged in action with enemy aircraft, and afterwards scuttled as unseaworthy, Norway, May 1940.

RIFSNES (1932). 431 tons *gross*.
Sunk in action with enemy aircraft, May 22, 1940.

CHARLES BOYES (1918). 290 tons *gross*.
Mined, May 26, 1940.

CAPE PASSARO (1939). 590 tons *gross*.
Sunk in action with enemy aircraft off French coast, May 28, 1940.

MELBOURNE (1936). 466 tons *gross*.
Sunk in action with enemy aircraft off French coast, May 1940.

ARGYLLSHIRE (1938). 540 tons *gross*. **CALVI** (1930). 363 tons *gross*. **BLACKBURN ROVERS** (1934). 422 tons *gross*. **POLLY JOHNSON** (1919). 290 tons *gross*. **THOMAS BARTLETT** (1918). 290 tons gross. **THURINGIA** (1939). 396 tons *gross*.
All 6 lost during withdrawal operations at Dunkirk, May–June 1940.

OCEAN SUNLIGHT (1929). 131 tons *gross*.
Mined, June 14, 1940.

CRESTFLOWER (1930). 367 tons *gross*.
Foundered after being damaged by bombs from enemy aircraft, July 20, 1940.

CAMPINA (1913). 289 tons *gross*.
Mined, July 21, 1940.

RODINO (1913). 230 tons *gross*.
Sunk in action with enemy aircraft, July 1940.

FLEMING (1929). 356 tons *gross*.
Sunk in action with enemy aircraft, July 25, 1940.

STAUNTON (1908). 283 tons *gross*.
Mined, July 28, 1940.

CAPE FINISTERRE (1939). 591 tons *gross*.
Sunk in action with enemy aircraft, Aug. 2, 1940.

MARSONA (1918). 276 tons *gross*. **DRUMMER** (1915). 297 tons *gross*. **OSWALDIAN** (1917). 249 tons *gross*. **RIVER CLYDE** (1919). 276 tons *gross*.
All 4 mined during August 1940.

PYROPE (1932). 295 tons *gross*. **ELIZABETH ANGELA** (1928). 253 tons *gross*.
Both sunk in action with enemy aircraft, Aug. 1940.

RESPARKO (1916). 248 tons *gross*.
Sunk in action with enemy aircraft, August 24, 1940.

ROYALO (1916). 248 tons *gross*.
Mined in North Sea, Sept. 1940.

LOCH INVER (1930). 356 tons *gross*. **RECOIL**.
Both missing, October 1940.

COMET (1924). 301 tons *gross*. **SEA KING** (1916). 321 tons *gross*. **VELIA** (1914). 290 tons *gross*. **LORD STAMP** (1935). 448 tons *gross*. **JOSEPH BUTTON** (1918). 220 tons *gross*. **WAVEFLOWER** (1929). 368 tons *gross*.
All 6 mined during October 1940.

RESOLVO (1913). 231 tons *gross*. **LISTRAC**.
Both lost through enemy action, October 1940.

KINGSTON SAPPHIRE (1929). 356 tons *gross*.
Sunk by enemy submarine, October 1940.

RINOVIA (1931). 429 tons *gross*. **SEVRA** (1921). 253 tons *gross*. **STELLA ORION** (1935). 417 tons *gross*. **WILLIAM WESNEY** (1930). 364 tons *gross*. **LORD INCHCAPE** (1924). 338 tons *gross*.
All 5 mined during November 1940.

DUNGENESS (1914). 263 tons *gross*. **FONTENOY** (1918). 276 tons *gross*. **TILBURY NESS** (1918). 279 tons *gross*.
All 3 lost through damage received in action with enemy aircraft during November 1940.

GOORANGAI (1919). 223 tons *gross*. (R. Australian Navy.)
Sunk by collision with a passenger steamer in Melbourne Bay, November 1940.

BRAS D'OR (1901). 221 tons *gross*. (R. Canadian Navy.)
Missing and believed lost in heavy weather, October 1940.

CALVERTON (1913). 214 tons *gross*. **ELK** (1902). 181 tons *gross*. **ETHEL TAYLOR** (1917). 276 tons *gross*.
All 3 mined during December 1940.

DESIRÉE (1912), 213 tons *gross*. **CHESTNUT** (1914), 107 tons *gross*. **MANX PRINCE** (1910), 221 tons *gross*. **REFUNDO** (1917), 258 tons *gross*. **KENNYMORE** (1914). 225 tons *gross*.
All 5 lost in January 1941.

Drifters

RAY OF HOPE (1925). 98 tons *gross*.
Mined, Dec. 10, 1939.

BOY ROY (1911). 95 tons *gross*. **GIRL PAMELA** (1912). 93 tons *gross*. **PAXTON** (1911). 92 tons *gross*.
All 3 lost during withdrawal operations at Dunkirk, May–June 1940.

GIRL MARY. 25 tons *net*. **SUMMER ROSE** (1919). 96 tons *gross*.
Both lost through enemy action in October 1940.

GIRL HELEN (1934). 63 tons *gross*. **REED** (1932). 99 tons *gross*.
Both mined in November 1940.

XMAS ROSE (1918). 96 tons *gross*.
Mined in December 1940.

HARVEST GLEANER (1918). 96 tons *gross*.
Lost in January 1941.

Armed Merchant Cruisers

RAWALPINDI (1925). 16,697 tons *gross*.
Sunk by gunfire of enemy capital ships, Nov. 23, 1939.

CARINTHIA (1925). 20,277 tons *gross*.
Torpedoed by enemy submarine, June 8, 1940.

VANDYCK (1921). 13,241 tons *gross*.
Sunk in action with enemy aircraft, Norway, June 10, 1940.

SCOTSTOUN (ex-*Caledonia*). (1925). 17,046 tons *gross*.
Torpedoed by enemy submarine, June 13, 1940.

ANDANIA (1922). 13,950 tons *gross*.
Torpedoed by enemy submarine, June 16, 1940.

TRANSYLVANIA (1925). 16,923 tons *gross*.
Torpedoed by enemy submarine, August 1940.

DUNVEGAN CASTLE (1936). 15,007 tons *gross*.
Torpedoed by enemy submarine, August 1940.

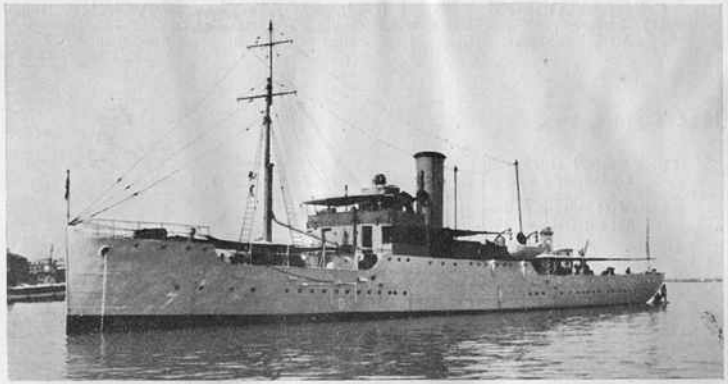
LAURENTIC (1927). 18,724 tons *gross*.
Torpedoed by enemy submarine, November 1940.

PATROCLUS (1923). 11,314 tons *gross*.
Torpedoed by enemy submarine, November 1940.

JERVIS BAY.
Sunk by gunfire of German "pocket battleship," Nov. 5, 1940.

FORFAR.
Torpedoed by enemy submarine, December 1940.

Patrol Vessel (R. Indian Navy)



PATHAN. 1932 *Photo, Official.*

PATHAN (1918). 661 tons.
Torpedoed by enemy submarine, June 23, 1940.

Armed Yachts

GRIVE (ex-*Narcissus*) (1905). 816 tons T.M. (F.A.A. Tender.)
Lost during withdrawal operations at Dunkirk, May 1940.

CAMPEADOR V (1938). 213 tons T.M.
Mined, June 23, 1940.

WARRIOR II (1904). 1,266 tons T.M.
Sunk in action with enemy aircraft, July 1940.

GULZAR (1934). 201 tons T.M.
Sunk in action with enemy aircraft, Dover, July 29, 1940.

SAPPHO (1935). 327 tons T.M.
Mined, October 1940.

Auxiliary Minesweepers

BRIGHTON BELLE (1900). 396 tons *gross*. **BRIGHTON QUEEN** (1905). 807 tons *gross*. **GRACIE FIELDS** (1936). 393 tons *gross*. **WAVERLEY** (1899). 537 tons *gross*. **CRESTED EAGLE** (1925). 1,110 tons *gross*.
All 5 lost during withdrawal operations at Dunkirk, May–June 1940.

Fleet Tugs

ST. FAGAN (1918). 820 tons.
Lost during withdrawal operations at Dunkirk, June 1, 1940.

SAUCY (1918). 579 tons *gross*.
Mined, October 1940.

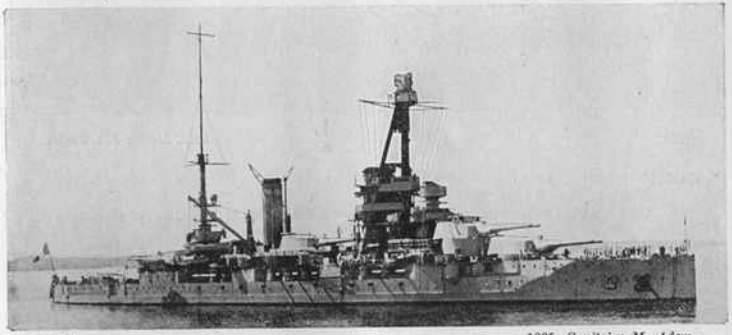
Miscellaneous Vessels

PRINCESS VICTORIA (Auxiliary Minelayer). 2,500 tons *gross*.
Mined, May 21, 1940.

COMFORT (Dan-laying Vessel). 60 tons *net*. **KING ORRY** (1913). 1,877 tons *gross*. **MONA'S QUEEN** (1934). 2,756 tons *gross*. (Armed Boarding Steamers.)
All 3 lost during withdrawal operations at Dunkirk, June 1940.

FRENCH

Battleship



BRETAGNE. 1935, *Capitaine M. Adam.*

BRETAGNE (1913). 22,189 tons.
Heavily damaged by British shell fire at Mers-el-Kebir, Oran, July 3, 1940, and subsequently capsized. Sister ship *Provence*, damaged on same occasion, may also prove to be a constructive total loss.

Cruiser Minelayer

LA TOUR D'AUVERGNE 1939, *H. Emery, Toulon.*

LA TOUR D'AUVERGNE (1929). 4,773 tons.
Destroyed by internal explosion at Casablanca, Sept. 18, 1939.

Destroyers

MOGADOR (1937). 2,884 tons.
Believed to have received irreparable damage from British shell fire at Oran, July 3, 1940.

L'AUDACIEUX (1934). 2,569 tons.
Set on fire and sunk in action with British squadron at Dakar, Sept. 23, 1940.
(A second destroyer of this type was set on fire and may also have become a total loss.)

MAILLÉ BREZÉ 1933 *Capitaine M. Adam.*

MAILLÉ BREZÉ (1931). 2,441 tons.
Caught fire and blew up in a British port, April 30, 1940.

CHACAL (1924), **JAGUAR** (1923). 2,126 tons.
Both lost during withdrawal operations at Dunkirk, May–June 1940.

L'ADROIT (1927). 1,378 tons.
Lost during withdrawal operations at Dunkirk, May 1940.

LA RAILLEUSE (1926). Sister ship to *L'Adroit*, above.
Destroyed by internal explosion at Casablanca, March 27, 1940.

FOUDROYANT (1929). Sister ship to *L'Adroit*, above.
Lost during withdrawal operations at Dunkirk, June 1940.

BOURRASQUE (1925), **OURAGAN** (1924), **SIROCO** (1925). 1,319 tons.
All lost during withdrawal operations at Dunkirk, May–June 1940.

BISON 1937, *Grand Studio, Malta.*

BISON (1928). 2,436 tons.
Set on fire by bombs from enemy aircraft off Norwegian coast, and subsequently torpedoed as being beyond salvage, May 3, 1940.

PANTHÈRE, CYCLONE and **ORAGE.**
Reported to have been lost.

Submarines

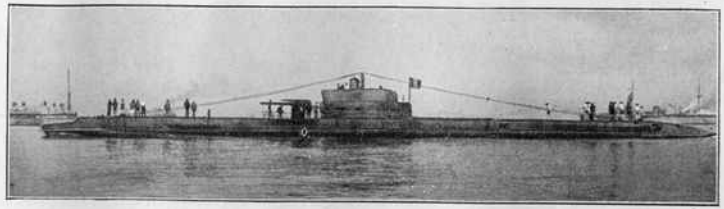
AJAX (1930), **PERSÉE** (1931). 1,379 tons.
Both sunk in action with British squadron at Dakar, Sept. 23, 1940.

ACHILLE (1930), **AGOSTA** (1934), **OUESSANT** (1936). Sister ships to *Poncelet*, below.
Scuttled at Brest to avoid capture, June 1940.

PONCELET (1929). Sister ship to *Ajax* and *Persée*, above.
Scuttled off Port Gentil, Gaboon, November 1940.

SFAX (1934). Sister ship to *Ajax* and *Persée*, above.
Torpedoed by enemy submarine while on passage from Casablanca to Dakar, Dec. 19, 1940.

NARVAL (1925). 974 tons.
Lost through enemy action, January 1941.



DORIS 1929, *Marius Bar, Toulon.*

DORIS (1937). 552 tons.
Missing, May 1940.
(Several submarines under construction were destroyed on the slips, or after launching.)

Sloops

RIGAULT DE GENOUILLY (1932). 1,969 tons.
Torpedoed by British submarine in the Western Mediterranean, July 3, 1940.

BOUGAINVILLE (1931). Sister ship to *R. de Genouilly*, above.
Sunk in action with Free French Forces at Libreville, November 1940.

Submarine Chasers.

CH 6, CH 7 (1939). 107 tons.
Lost through enemy action, October 1940.

Oilers

LE NIGER (1930). 5,482 tons.
Lost during withdrawal operations at Dunkirk, May 1940.

RHONE (1910). 2,785 tons.
Torpedoed by enemy submarine while on passage from Casablanca to Dakar, Dec. 19, 1940.

Miscellaneous Vessels

BARSAC (1929). 1,049 tons *gross*. (Auxiliary Patrol Vessel.)
Wrecked on Spanish coast near Vigo, Jan. 6, 1940.
(2 other smaller auxiliaries were lost during 1939.)

POULMIC (1937). 350 tons. (Transport de Personnel.)
Sunk by enemy action, October 1940.

POLISH

Destroyers

GROM (1936). 2,144 tons.
Sunk in action with enemy aircraft off Norwegian coast, May 1940.

WICHER (1928). 1,540 tons.
Sunk in action with German destroyers and aircraft at Gdynia, Sept. 1939.

Submarine

ORZEL 1939, *Official.*

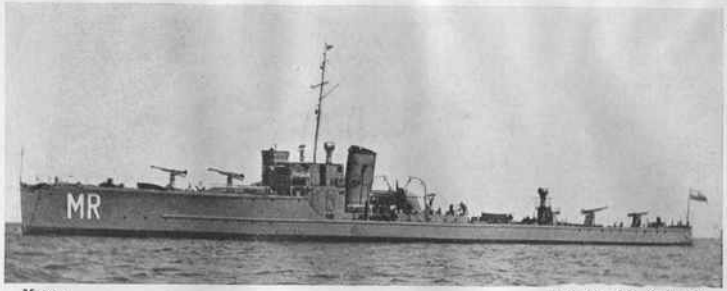
ORZEL (1938). 1,110 tons.
Missing, June 1940.

Minelayer

GRYF 1938, *Official.*

GRYF (1936). 2,227 tons.
Sunk in action with German destroyers and aircraft at Gdynia, Sept. 1939.

Torpedo Boat



MAZUR 1938, *Mr. Geo. Rutkowski.*

MAZUR (1914). 349 tons.
Sunk in action with German destroyers and aircraft at Gdynia, Sept. 1940.
(Other Polish warships are understood to have been blown up to avoid capture.)

GREEK

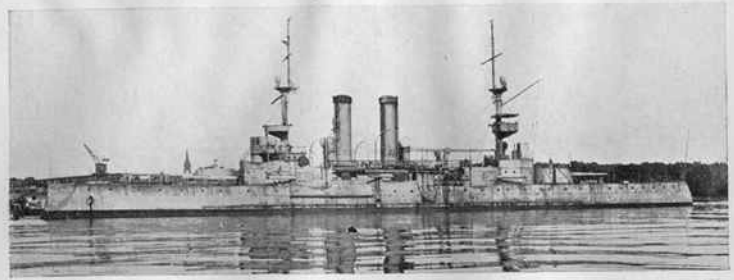
Minelayer

HELLE. 1931 *Photo, Official.*

HELLE (1912). 2,083 tons.
Torpedoed by Italian submarine while lying at anchor off Tinos, August 15, 1940.

NORWEGIAN

Coast Defence Ships



NORGE 1933, *Official.*

EIDSVOLD, NORGE (1900). 4,166 tons.
Both torpedoed by German destroyers at Narvik, April 9, 1940.

Minelayer

FROYA 1930, *Official.*

FROYA (1916). 595 tons.
Sunk by German warship in Trondheim Fjord, April 1940.

Torpedo Boats

AEGER (1936). 597 tons.
Sunk in action with enemy aircraft, April 1940.

GARM (1913). 540 tons.
Sunk by enemy, April 1940.

STEGG (1917). 220 tons.
Sunk by German warship *Bremse* in Hardanger Fjord, April 1940.

SILD (1900). 70 tons.
Sunk by German motor torpedo boat, April 1940.

SAEL (1900). 90 tons.

GRIB, JO, RAVN (1904–06). 70 tons.

BRAND, STORM (1899). 79 tons.
All sunk by enemy during April 1940.

Minesweeper

RAUMA (1939). 320 tons.
Sunk by German warships in Oslo Fjord, April 1940.

Fishery Protection Vessels

SENJA (1937). 243 tons.

MICHAEL SARS (1900). 300 tons.
Both sunk by enemy, April 1940.

NETHERLANDS

Destroyer

VAN GALEN (1928). 1,316 tons.
Sunk in action with enemy aircraft at Rotterdam, May 1940.

Submarine

One (identity not disclosed). Missing, December 1940.

A submarine was lost in Jan. 1941.

Sloop

JOHAN MAURITS VAN NASSAU 1939, *Lieut. L. F. Bowman.*

JOHAN MAURITS VAN NASSAU (1932). 1,520 tons.
Lost in Zuider Zee while resisting German invasion, May 1940.

Minelayer

HYDRA (1911). 593 tons.
Lost in Zuider Zee while resisting German invasion, May 1940.

Gunboats

FRISO (1912). 540 tons.
Lost in Zuider Zee while resisting German invasion, May 1940.

BRINIO (1912). Sister ship to *Friso*, above.
Missing and believed lost on same occasion, May 1940.

BRINIO 1934.

Minesweepers

WILLEM VAN EWIJK (1937). 525 tons.
Mined off Terschelling, Sept. 8, 1939.

PIETER FLORISZ, ABRAHAM VAN DER HULST (1937). Sister ships to *Willem van Ewijk*, above.
Both missing, and believed lost during German invasion, May 1940.

GERMAN

Armoured Ship

GRAF SPEE

1937, *R. Perkins.*

ADMIRAL GRAF SPEE (1934). 10,000 tons.
Scuttled off Monte Video after being defeated in action with H.M.S. *Ajax*, *Achilles* and *Exeter*, Dec. 17, 1939.

Cruisers

BLÜCHER (1937). 10,000 tons.
Sunk in Norwegian minefield after being disabled in action with Oslo forts, April 9, 1940.

LEIPZIG (1929). 6,000 tons.
Torpedoed by H.M.S. *Salmon*, Dec. 12, 1939, and may have been sunk.

KÖNIGSBERG (1927). 6,000 tons.
Torpedoed and severely damaged by H.M.S. *Truant*, and subsequently sunk by Fleet Air Arm bombing attack at Bergen, April 9, 1940.

KARLSRUHE (1927). Sister ship to *Königsberg*, above.
Sunk off Kristiansund (probably torpedoed), April 9, 1940.
(A third ship of this type, the *Köln*, was torpedoed by H.M.S. *Ursula*, Dec. 14, 1939, and may have been sunk.)

DIETHER VON ROEDER

1938, *W. Schäfer.*

Destroyers

ANTON SCHMITT, WILHELM HEIDKAMP (1937). 1,811 tons.
Both sunk in action with British destroyer flotilla off Narvik, April 10, 1940.

HANS LÜDEMANN, HERMANN KÜNNE, DIETHER VON ROEDER (1937).
Sister ships to *Anton Schmitt*, before mentioned.
Sunk in action with H.M.S. *Warspite* and British destroyers off Narvik, April 13 1940.

Destroyers—*continued*

ERICH GIESE, ERICH KOELLNER, BERND VON ARNIM, WOLFGANG ZENKER (1936–37). 1,625 tons.
Sunk in action with H.M.S. *Warspite* and British destroyers, April 13, 1940.

MAX SCHULTZ 1937, *W. Schäfer.*

LEBERECHT MAASS, MAX SCHULTZ (1935). Sister ships to *Erich Giese*, above.
Admitted by Germany to have been lost—possibly during operations against Poland in Sept. 1939.

GEORG THIELE and **BRUNO HEINEMANN.**
Believed to have been lost.

Torpedo Boats

ALBATROS (1926). 800 tons.
Believed to have been sunk in action with Norwegian minelayer *Olaf Tryggvason*, April 9, 1940.

One torpedoed and sunk off the French coast by H.M.S. *Swordfish* in October 1940.

Submarines

When war began, Germany had about 70 submarines available. Frequent announcements were subsequently made of the destruction of U-boats by British naval and air forces, and it is probable that few of the above 70 still remain in service. U 13 (1935), 250 tons, is the only number of a German submarine to be announced officially as lost.

Motor Torpedo Boats

Three were sunk by British and French destroyers during Norwegian operations, April 1940; three were sunk by British aircraft in May and June, 1940; and one by H.M.S. *Malcolm* and *Verity* on Aug. 14, 1940; two while acting as convoy escorts off French coast in October 1940; and one by British light forces in the North Sea, Nov. 19, 1940.

Minesweepers

M 132 (1919). 525 tons.
Wrecked on West coast of Jutland, Jan. 1940.
(Another of this type was mined Sept. 10, 1940).

Trawlers

Vessels of this type were mined on Oct. 21, Nov. 25, Nov. 27 and Dec. 4, 1939, and one foundered in bad weather on Dec. 30, 1939, all in the Baltic approaches. Another was sunk by British aircraft in the North Sea, March 27, 1940; one was sunk by French destroyers in the Skagerrak in April 1940, and one by H.M.S. *Malcolm* and *Verity* on Aug. 14, 1940. An unidentified warship was seen to blow up off Göteborg in May 1940.

Motor Launch

One was sunk in a minefield in Baltic approaches, Dec. 8, 1939.

ITALIAN

Cruiser

BARTOLOMEO COLLEONI (1930). 5,069 tons.
Sunk by gunfire of H.M.S. *Sydney* to N.W. of Crete, July 19, 1940.

Destroyers

ESPERO (1927). 1,073 tons.
Sunk by gunfire of British Mediterranean Fleet, June 27, 1940.

ZEFFIRO (1927). Sister ship to *Espero*, above.
Sunk by gunfire of British Mediterranean Fleet, July 9, 1940.

One of "Navigatori" type, 1,628 tons.
Sunk by bombing attack of Fleet Air Arm at Augusta, July 10, 1940.

One sunk by bombing attack of Fleet Air Arm at Bomba, Libya, August 22, 1940.

ARTIGLIERE (1937). 1,620 tons.
Sunk in action with H.M.S. *Ajax* and *York*, October 11, 1940.

FRANCESCO NULLO (1925). 1,058 tons.
Driven ashore and torpedoed by H.M.S. *Kimberley*, October 21, 1940.

One disabled by R.A.F. and seized by Greek forces at Santi Quaranta, Dec. 4, 1940.

Torpedo Boats

One sunk in Fleet Air Arm attack at Benghazi, Sept. 16, 1940.

PALESTRO (1919). 862 tons.
Torpedoed by H.M.S. *Osiris*, Sept. 22, 1940.

Two of "Partenope" type, 679 tons.
Sunk in action with H.M.S. *Ajax*, October 11, 1940.

One of "Climene" class.
Sunk in action with British Mediterranean Fleet, January 10, 1941.

Submarines

GALILEO GALILEI (1934). 880 tons.
Surrendered to H.M.S. *Moonstone*, June 19, 1940.

NAIADE (1933). 590 tons.
Sunk by British warships off Libyan coast, December 14, 1940.

ARCHIMEDE (1933), **EVANGELISTA TORRICELLI** (1934).
Sister ships to *Galileo Galilei*, above.

DURBO (1938). 615 tons.

PERLA (1936). 620 tons.
The above, together with about 20 other submarines, are understood to have been destroyed during June—October 1940.

One was torpedoed by H.M.S. *Thunderbolt* in December 1940.

CONSOLE GENERALE LIUZZI, GALVANI, UEBI SCEBELI, MACALLE, RUBINO.
Believed to be among those lost.

Motor Torpedo Boats

One sunk by French Navy off Riviera, June 13, 1940.

Two sunk by gunfire of British cruisers, Sept. 4, 1940.

Minesweeper

One sunk by Fleet Air Arm in bombing attack at Tobruk, June 13, 1940.

Gunnery Training Ship

SAN GIORGIO (1908). 9,232 tons.
Heavily damaged and beached during bombing attack by Fleet Air Arm at Tobruk, June 11, 1940, and is probably a total loss.

Depot Ship for Submarines

One sunk in bombing attack at Bomba, Libya, August 22, 1940.

WAR LOSS ADDENDUM

British:

Trawler **PELTON**, 358 tons *gross*, sunk in Jan. 1941.

GENERAL INDEX (Named Ships only.)

ABBREVIATIONS: (A) signifies Argentine, (Br) Brazilian, (Chil) Chilean, (C) Chinese, (Cu) Cuban, (Da) Danish, (F) French, (G) German, (Gr) Greek, (I) Italian, (J) Japanese, (N) Netherlands, (Nor) Norwegian, (P) Peruvian, (Po) Polish, (Port) Portuguese, (Ro) Roumanian, (Rus) Russian, (Sp) Spanish, (Sw) Swedish, (T) Turkish, (U.S.) United States. No descriptive term implies British Empire.

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